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More Storage, Same Amount Of Space

Aberdeen Stirling & AberNAS Solutions Now Support 4TB Hard Drives

Since 1991, Aberdeen has been designing and manufacturing scalable high-capacity storage solutions for companies in a wide variety of industries. Through the years, the company has always strived to maximize the efficiency of its products in order to provide the most storage possible to its customers. And even while Aberdeen releases new products, it continues to make improvements to its currently available solutions. The company made just such a change with its already popular Stirling and AberNAS product lines by increasing the potential storage capacity by 33%.

Support For 4TB Hard Drives

Aberdeen's Stirling and AberNAS solutions have always been able to provide large amounts of storage, whether it was up to 198TB in a single server or as much as 1PB (petabyte) in an array. However, the company has now included support for Hitachi's Nearline 24/7 4TB SATA hard disk drives, which improves on efficiency and provides even more raw storage capacity than ever before. In fact, you can now get as much as 16TB of storage in a 1U model or up to 264TB in an 8U rackmount configuration.

> You can now get as much as 16TB of storage in a 1U model or up to 264TB in an 8U rackmount configuration.

This increase in capacity per hard drive makes it possible to pack more available storage into each system without the need to invest in additional servers. In addition to cutting down on equipment expenditures, the added capacity can also help free up some much needed space in your data center or even aid in the consolidation process. As with all Aberdeen products, these configurations are highly customizable, so you can get the exact amount of storage you need at exactly the right size.

Stirling Scalable Storage Servers

In addition to the newly added support for 4TB hard drives, Aberdeen's Stirling Scalable Nearline Storage Servers are also packed with many other helpful features for data centers. Each Stirling server utilizes Intel's 5520 Chipset, Intel® Xeon® Processor 5600 series, and Intel microarchitecture with Turbo Boost Technology. Aberdeen's Stirling servers also feature up to 192GB of DDR3 memory, a maximum bandwidth of 32GBps, and much more. All Stirling servers are available in RAID 6, 0, 1, 5, and 10 configurations with more than 1200MBps transfers. By combining all of these technologies into one solution, you can expect superfast processing speeds and reliable performance.

Aberdeen also has four specific Stirling configurations with Intel® Xeon® Processor 5600 onboard. The first is the 3U X339, which supports up to 16 hard drives and up to 64TB of capacity. The 5U X539 supports up to 24 hard drives and as much as 96TB of storage. The two 8U models, the X889 and the X899, have space for 48 and 64 hard drives and up to 192TB and 256TB of storage, respectively. Because these systems are highly customizable and can be easily combined to create an array, Aberdeen also added the option of expandable SAS2 storage up to 1PB and beyond.

AberNAS Solutions

For those in need of scalable, high-capacity NAS solutions, Aberdeen offers its AberNAS line of products designed to work with the specific operating system you choose. For instance, the AberNAS LX-Series works with 64-bit Linux environments and the AberNAS X8-Series is designed for the Microsoft Windows Storage Server 2008 OS. Aberdeen also has a 32-bit Windows Storage Server 2003 R2 entry-level AberNAS model and other Linux-based solutions.

For companies using Linux-based operating systems in need of massive virtualized storage arrays, the AberNAS LX-Series has many great features. It now supports up to 8EB (exabytes) of storage and, with this immense level of available storage, Aberdeen has also included an easier to use GUI for 64-bit Linux environments so it's much easier to manage your hard drive arrays.

Aberdeen's AberNAS solutions are flexible in that you can have as much as 264TB of storage in a server to as little as 2TB in a 1U configuration. They feature support for RAID 0, 1, 5, 6, 10, and JBOD and SATA 3Gbps or 6Gbps disk drives. In addition, these storage solutions are protected with snapshot data recovery, hardware redundancy, and redundant hot-swappable power supplies.

Customizable & Scalable Solutions

As always, Aberdeen's tech experts are available to help you configure the Stirling and AberNAS storage solutions to your exact specifications. The products are designed for companies of all sizes, from a small business to the largest enterprise. Plus, the Stirling and AberNAS solutions can grow alongside your company, leaving enough space for you to quickly and easily scale your maximum storage capacity. P

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FEATURED PRODUCT

Customized With Redundancy In Mind

Chenbro Has The Design & Testing Capabilities To Help With Your Chassis Needs

Among all the words that a person can attach to a data center or an enterprise in general, "downtime" would certainly rank among the least popular words for data center and IT managers and administrators. And for obvious reasons: potential data loss, compliance issues, hits to productivity, a decrease in customer confidence, the business' reputation being potentially shattered, and the lost revenue that can total in the thousands of dollars for every minute operations are down. Further, the time and resources that must be spent in helping the business recover must be factored in.

The severity of downtime and the repercussions that can result from it aren't lost on Chenbro. For nearly 30 years, Chenbro has manufactured rackmount, server/workstation, PC, and customized chassis models that are built with a focus on modular designs and are steeped in innovations and technologies that the company has helped bring about or put to better use.

Where manufacturing chassis is concerned, Chenbro puts a strong emphasis on providing its customers the ability to take advantage of the company's prowess for customizing chassis to any configuration that the customer might need. This includes customizing a server chassis with redundancy features built in to safeguard the customer from the possibility of experiencing downtime due to a downed server.

Chenbro, in fact, has seen a trend in the market and among customers in which businesses are seeking forms of redundancy, particularly where data center storage and high-density storage are concerned. Overall, Rick Chang, sales and marketing manager at Chenbro, says as the exchange of information and social networking-related activities have become increasingly more popular and cloud computing usage has become more common, data transmission over the Internet has not only become extremely busy but extremely important. "Any server downtime at the data center or at the enterprise level is costly," Chang says.

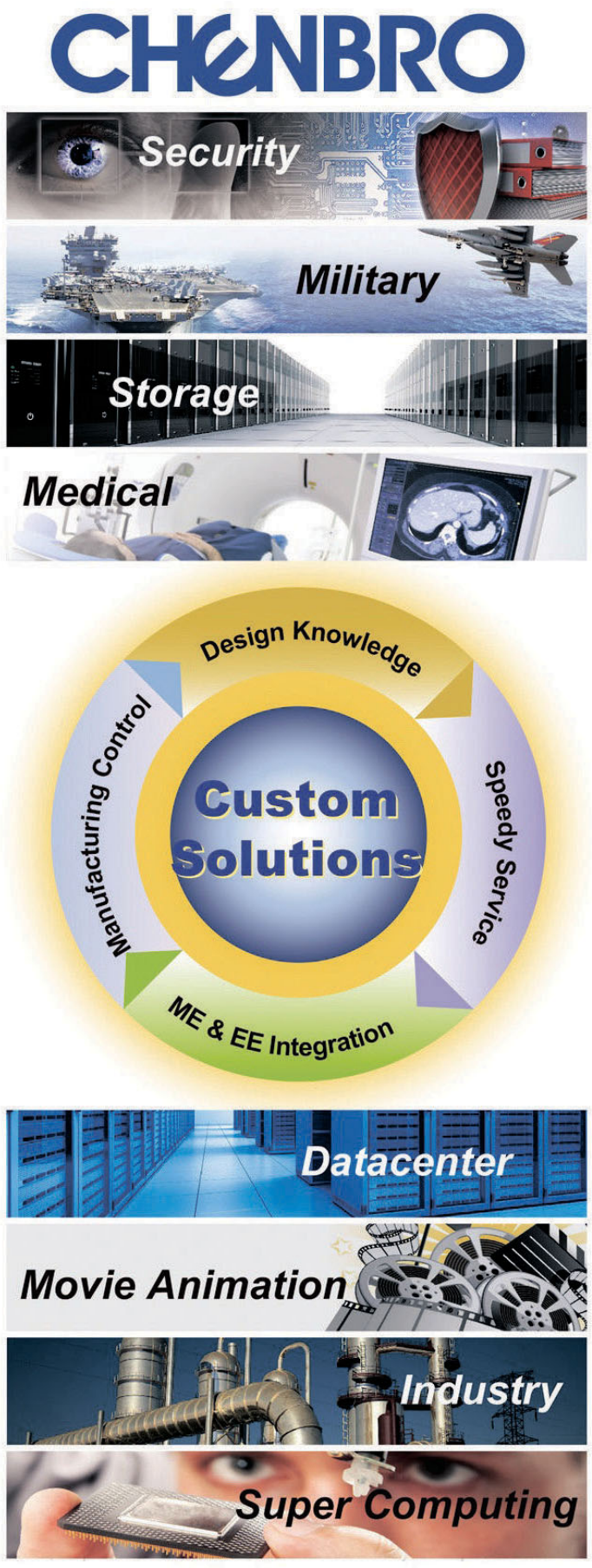
A Study In Redundancy

To illustrate exactly how Chenbro is able to customize a chassis configuration to meet specific customer redundancy requirements, consider the case of a customer that requires a high-density storage chassis to be used for a video-streaming application. Such a chassis might require a hard drive cage that occupies the front and rear spaces of the chassis, a layout that would mean thermal conditions would be a more critical consideration than with a typical configuration.

For such a configuration, a customer might require a redundancy fan mechanism be put in place to ensure that if one fan fails, the other fans will pick up the cooling load and prevent the chassis from overheating internally, a situation that would likely negatively affect critical components, including the CPU, add-ons, and the power supply. Additional thermal-related customization possibilities might likely include add-ons consuming above-average wattage and all available slots in the chassis being occupied, factors that would mean special thermal attention would be required. Further, the distinct possibility of hot air recirculating inside the chassis would likely need to be addressed.

Ares Lee, product manager at Chenbro, says although system configurations vary from application to application and customer to customer, Chenbro's experience and customization expertise enables the company to meet specific customer requirements in less time. In addition to relying on the company's experience, Lee says, Chenbro is able to address thermal hot spot issues involving a chassis by using thermal simulation software and performing thermal testing. The customized chassis that results from this process is a "dedicated solution that can take care of the thermal issue in a shorter time," he says.

To meet a customer's requirements in such a customization project, Chenbro enlists a series of standard thermal validation procedures, including the use of Pro-E Wild Fire software to create a mechanical design layout, Icepak simulation software to measure flow and temperature fields, and smoke generator visualization software to measure flow patterns. Further, Chenbro maintains in-house thermal facilities that include a thermal chamber and programmable temperature and humidity equipment. Additionally, once a customized chassis project is completed, Chenbro enters the associated project data into the company's application knowledge database so that the company can reduce the response time for future project inquiries.



Chenbro uses a variety of equipment to test the chassis it creates, including the thermal simulation, drop test system, and temperature and humidity tester pictured here.

Redundancy Built In

By integrating redundancy features into a server solution, Chang says, the potential of downtime occurring from a data center or enterprise server that has become inoperable, whether due to a lack of regular maintenance or a hardware failure, is minimized. Hardware failures, Chang says, could include those related to fans, a RAID card, or hard drives. "These types of redundant servers are extremely crucial for telecommunications servers, media storage servers, and Internet data centers," Chang says. Chenbro offers customers the ability to configure their chassis via customized features so that such events don't occur.

Among the reference models in Chenbro's custom chassis line are server models designed specifically for ERP, portable, networking, telecommunications, easy maintenance, and media storage uses. All the modules feature high-quality workmanship that involves the use of the company's pressing and stamping construction method, as well as laser cutting, plastic injection, and in-house coating. Additional features include Chenbro's use of ProEngineer 3D Design software, integrated anti-vibration measures, and mechanical and electrical integration.

More Than A Metal Shop

Although Chenbro places great importance on customization and meeting customers' needs, the durability and reliability of its chassis is also a high priority for the company. A major factor in producing high-quality and long lasting products is testing them, something that's done in Chenbro's previously mentioned in-house testing facilities to ensure that a chassis meets expected performance levels, including where thermal and vibration conditions are concerned. Testing for the latter condition includes ensuring the mechanical design is capable of absorbing and isolating vibration energy and identifying sources of vibration within the system.

In general, the testing procedure follows standard NPDP (New Product Development Procedures) and a testing process that involves running a gamut of tests that cover everything from functional to system to backplane compatibility tests. In addition to thermal and vibration testing, other assessments include an EMI (electromagnetic interference) pre-scan, a drop test, and SAS protocol analyzing for expanders or expander backplanes to ensure compatibility on the storage subsystem. Optional third-party testing available upon customer request covers acoustic, shock, and CE/FCC certification parameters. P

Contact:
(909) 947-3200 | www.chenbro.com

FEATURED PRODUCT

Products Prepared For Real-World Use

Server Technology & PDUs Direct Know The Importance Of Product Testing

Most companies perform some form of testing on their products to ensure that they are in good working condition before being shipped to customers, but Server Technology, experts at producing the highest standard of quality PDUs, goes above and beyond basic testing with its 100% Product Performance Testing. The process includes putting each product through a series of tests designed to push it to its limits, which results in high-quality products with low failure rates.

The reason Server Technology decided to perform these tests on every product for 27 years is much simpler than you may think. "The worst thing for a customer is to open a box, plug a product in, and it doesn't work," says Jim Scherr, director of sales and operations at PDUs Direct (www.pdusdirect.com), the master distributor of Server Technology PDUs. "The overarching reason for doing the power testing is simple: to make sure that any product that leaves our building functions as per designed and meets all the criteria of the customer. We're committed to always providing the quality and value that our customers expect."

The first and foremost benefit of Server Technology's 100% Product Performance Testing is that customers can have peace of mind knowing that the products powering their mission-critical devices work as designed and have less of a chance to fail, according to Scherr. Server Technology's major goal is to help keep their customers' physical infrastructure up and running so they can be as productive as possible.

Testing From Beginning To End

With 100% Product Performance Testing, it isn't just a matter of testing a product after it's completely built. In fact, these products are tested throughout the manufacturing process to make sure any possibly defects or other issues are caught early on to prevent a potential domino effect later down the line. And if a product fails at any step along the way, changes are made and the testing process at that level starts all over again. "It's good for us to know early on if there's a problem because we can fix it here at our manufacturing facility, which is so much better and quicker than trying to fix issues or problems in the field," Scherr says.

The variety of tests performed on the products run the gamut from thermal, shock, and vibration testing to compliance with ATE (Automated Test Equipment) tests, as well. It all leads to the final tests, which are designed to test the product in real-world applications and make sure they are ready for the customer once and for all. All tests are performed in a state-of-the-art Power Lab.

"All products are tested at all stages, starting from when the product is in its infancy to when it has become finalized," Scherr says. "Just before it goes out the door after the final modification, we test it once again. We don't just test it by plugging it in and making sure the lights come on; we plug it in and we load every receptacle. We just want to make sure that, functionally, the product fully works under the conditions it will see in the future."

A Partnership Between Manufacturer & Customer

PDUs Direct sells a wide variety of Server Technology products, including basic, switched, and metered Rack PDUs, and all of them go through the 100% Product Performance Testing process. It's a combination of well-built, easy-to-use products and a degree of testing that isn't often seen in the IT industry. Current customers notice this because, according to Scherr, they "really appreciate the due diligence being done prior to them getting the products."

And Server Technology, along with PDUs Direct, sees its relationship with customers as a mutual partnership, which is why 100% Product Performance Testing was put into practice in the first place. These companies strive to provide the best products available with the highest amount of testing and lowest failure rates so that their customers can focus on running their businesses instead of fixing infrastructure issues.

"The quality, reliability, and performance of our products are the most important benefits—to our customers and to us," Scherr says. "It's what we've built the company on and what we stand for every day." P

Server Technology 100% Product Performance Testing

(800) 835-1515
www.servertech.com

Tests products at every step, from inception to production to sale, to ensure the highest quality and lowest failure rates possible.

FEATURED PRODUCT

A Boost In Performance

Aberdeen x70 Series Stirling Servers Feature The Intel® Xeon® Processor E5-2600 To Improve Data Center Applications

A performance boost, no matter how small, is always a good thing. A performance boost reaching up to 80%, however, is a major step up. Aberdeen's dual-socket x70 Series Stirling Servers open the door to such a performance gain by including the new Intel® Xeon® Processor E5-2600 series, which is built on the Sandy Bridge-EP core design and part of the Romley platform when paired with the new Intel C602 (Patsburg) chipset.

Based on Intel's 32nm manufacturing technology, the Intel® Xeon® Processor E5-2600 offers more cores, cache, and memory capacity, as well as bigger, faster communication pathways. The Intel® Xeon® Processor E5-2600 can help companies meet demand for efficient, secure, and high-performing data center infrastructure by offering unparalleled, balanced performance across compute, storage, and network environments, Intel says.

A Boost For Data Centers

Aberdeen offers the Intel® Xeon® Processor E5-2600 in dual-socket (Dual LGA2011 Socket R) configurations in eight base models in the x70 Series Stirling Server family in 1U Mainstream, 1U Advanced, 2U Mainstream, 2U Advanced, and 4U Mainstream options. The base 4U Mainstream configuration provides an Aberdeen Stirling 470 server with dual 2GHz Intel® Xeon® Processor E5-2650s, 16GB of DDR3-1600MHz memory (up to 256GB), two 2TB Hitachi Ultrastar 7200rpm drives (up to eight drives supported), an LSI 9261 SAS2 controller, and a SuperServer 7047R-TRF server kit. The 171-178 and 179 have redundant 80 Gold level power efficiency certified power supplies in 1U, while the 278 can have up to 24 2.5-inch drives. All x70 Series Stirling models can be customized with add-on cards, backplanes, storage, and other features.

The Intel® Xeon® Processor E5-2600 series has 17 parts supporting up to eight cores per processor and up to 768GB of system memory (quad-channel DDR3 up to 1600MHz). The Intel® Xeon® Processor E5-2600 provides up to an 80% increase in performance compared to the Intel® Xeon® Processor 5600-series. It also includes new Intel Integrated I/O technology with PCI Express 3.0 support built in. Intel says the addition can triple the rate of data flows coming in and out of the processor, reducing latency by up to 30%. Support for Intel DDIO (Data Direct I/O) technology enables Intel Ethernet controllers and adapters to route I/O traffic straight to processor cache.

The processors include support for Intel AVX (Advanced Vector Extension), technology. Also noteworthy is the Intel® Xeon® Processor E5-2600's ability to improve energy efficiency by more than 50% vs. the Intel® Xeon® Processor 5600 series, a boon to data centers seeking to gain performance while reducing power consumption and costs. Intel says the new age of "intelligent performance" found in the Intel® Xeon® Processor E5-2600 will result in best-in-class support for virtualization, consolidation, and cloud computing.

Guaranteed Excellence

Beyond the x70 Series Stirling Server models, Aberdeen has been producing general-purpose and storage servers since 1991, placing a strong emphasis on providing customers customization options and high performance offered at competitive prices. In addition to customized servers ranging from 1U to 8U form factors, the company also sells barebones server configurations.

Aberdeen covers every fully configured rackmount server with a five-year-warranty that guarantees the server to be free of material defects for five years. Aberdeen also warranties each server to be free of workmanship defects for the server's lifetime. Other customer-tailored programs include an Internet-based leasing program and a CARES (Custom Assembled Rackmount Evaluation Service) program, which provides qualified customers with a server that's configured to their needs that they can use for a free 30-day assessment period with no obligations. P

Aberdeen x70 Series Stirling Servers

(800) 500-9526
www.aberdeeninc.com

The x70 Series Stirling Servers feature the use of the Intel® Xeon® Processor E5-2600 series, which include numerous features geared specifically toward boosting performance in data center applications.

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FEATURED PRODUCT

A New Eaton Power Specialist

Rackmount Solutions Offers Eaton ePDUs & Powerware UPSes

Over the years, Plano, Texas,-based Rackmount Solutions has accrued a customer list totaling more than 85,000 companies continually returning to do business, which is one reason the company has been named one of America's fastest-growing private companies three years in a row, says Deborah Petty, Rackmount Solutions president. Another reason is the quality of products Rackmount Solutions provides, products that now include Eaton ePDUs and Eaton Powerware UPSes thanks to Eaton recently dubbing Rackmount Solutions an Eaton Power Specialist in Texas.

"Eaton makes a great product, and we're proud to be an Eaton-qualified Authorized Power Advantage Specialist," Petty says. "In the industry, Eaton's name is synonymous with quality, and so is Rackmount Solutions. We don't affiliate with inferior suppliers." For current Rackmount Solutions customers who want and need to combine all purchases from one supplier, Petty says, the Eaton partnership "fills a product void, allowing a customer's purchasing department to consolidate and streamline their paperwork."

Power Distributed

Eaton ePDUs now available through Rackmount Solutions include Monitored (support for up to 25 1U/2U servers or three blade server chassis), Advanced Monitored, and Switched ePDU models. Beyond an Easy-Read digital LED ammeter that enables simple startup and server provisioning, each Monitored ePDU lets enterprises remotely monitor the current draw of individual sections via Ethernet or serial communication. Combined with software, this ability enables enterprises to aggregate data from thousands of ePDUs fixed in one location.

The Advanced Monitored ePDUs, suitable for standard and blade servers, include the same primary features as Monitored ePDUs. They can also employ multiple configurations and are designed for high-density, mission-critical server applications. Beyond reducing enclosure space requirements, Advanced Monitored ePDUs support reading data over Ethernet and remote individual outlet-level monitoring and monitoring amperage traveling through an ePDU's separate circuits.

Switched ePDUs are available in 0U and 2U rackmount and 42-inch or 66-inch vertical length units and are aimed at data centers requiring remote site management and voltage and current monitoring, as well as temperature and humidity monitoring via serial or Ethernet connections. Beyond individual on/off/reboot control for up to 36 receptacles, a customizable control interface supports sending SNMP traps and email alerts. Further, strapping support enables a master unit to control up to 23 slave units.

"The ePDU provides the capability to distribute and manage power consumption at the rack level," says Joe Skorjanec, Eaton product manager. In addition to a full portfolio of stock configurations, Skorjanec says, Eaton also offers custom configurations. Eaton's high power-density models for blade servers and switches can monitor power consumption to the outlet level.

EATON
Powering Business Worldwide

Skorjanec says Eaton's line of rack PDUs can meet the needs and budget of any IT environment. The basic ePDU, for example, provides power distribution to multiple outlets in a reliable enclosure at a low price point, he says. "Monitored ePDUs provide a local current meter display to ensure proper outlet loading and remote monitoring to prevent costly outages. Switched and managed ePDUs provide capability to remotely turn servers on, off, or reboot. Advanced Monitored and managed ePDUs provide outlet-level power consumption data for calculating PUE and doing power trending."

Power Supplied

Rackmount Solutions is also selling Eaton Powerware UPSes, including network and server UPS models available in line interactive, online, and scalable redundant topologies supporting one to 10 servers or one to two blades. Line interactive models provide an offline topology enabling a UPS to interact with an incoming utility line to regulate power to the load. The more robust online units provide power to the load from the unit's inverter 100% of the time while regulating voltage and frequency. Scalable redundant units help companies obtain an initial UPS but add power and battery components later on. Eaton covers its ePDUs and UPSes with a standard three-year warranty and free 24-hour technical support.

"Eaton expects great things from Rackmount Solutions," Petty says. "One reason is because it knows we're highly respected in this industry for quality products and for putting the customer first." Proof of this is Rackmount Solution's ISO 9001:2008 certification, which Petty says indicates "the customer has the same great experience with us time after time. We have processes in place that ensure product quality, ordering processes, return processes, and shipping processes." P

Contact:
(866) 207-6631
www.rackmountsolutions.net

FEATURED PRODUCT

Flexible, Customizable & Universal Cabling Products

Total Cable Solutions Lives Up To Its Name

Ever since it was established, Total Cable Solutions, or TCS, has provided a variety of cabling products, ranging from copper SAS and SATA cables to fiber patch cables, trunk cables, and patch panels. But instead of starting with the manufacturing process and forcing the customer to adapt, TCS first consults with its customers to figure out exactly what they need and then engineers products to fit those specific requirements. TCS will even aesthetically customize its products with company names, part numbers, and bar codes. The company's ultimate goal is to provide the best possible customer service and highest quality products to data centers.

But Total Cable Solutions' focus goes beyond simply building products to a customer's exact specifications. TCS also designs its cabling solutions to be used with almost any piece of equipment, so you don't have to go through the process of matching cables to components or investing in massive infrastructure overhauls.

There's no product that better illustrates Total Cable Solutions' approach to cabling than the Universal LC cabling system. It combines customization, flexibility, and reliability to provide an overarching solution for any data center.

Total Cable Solutions Universal LC Cabling System

(888) 235-2097
www.totalcablesolutions.com

A complete cabling system that consists of three parts:

- Universal LC cables, which provide adjustable pitch, so you can change from standard LC (6.25 pitch) to mini LC
- Universal LC Trunk Cable, designed to make cable connection and management much easier
- Universal Patch packs everything into a 1U system

Universal LC Cabling System

The Universal LC cabling system is split into three parts: Universal LC cables, the Universal LC Trunk Cable, and the Universal Patch. The Universal LC cables go beyond traditional fiber cables to provide adjustable pitch, so you can change from standard LC (6.25 pitch) to mini LC (5.25 pitch) without needing to switch out cables. This not only cuts down on new component costs but prevents headaches related to manufacturers using different pitches for their respective pieces of equipment.

Each cable is built with a 2mm, high-density jacket and Bend Insensitive Fiber, which makes the Universal LC resistant to power loss and breakdown while being small enough to save space in small compartments and panels. Universal LC cables also feature Rapid Release Latches, so IT managers can quickly swap out cables or move them to different locations with a lot less hassle.

The Universal LC Trunk Cable is designed to make cable connection and management much easier. The Trunk Cable's Micro Core Trunk can support as many as 72 fibers to provide the high density data centers need while taking up less space. The Trunk Cable also comes with a Pulling Eye that helps pull cables through tight openings, floors, and trays without damaging them.

The Universal Patch solution supports plates from multiple manufacturers, sports a modular design with interchangeable brackets to fit any form factor, and packs everything comfortably into a 1U system. By combining all of these individual products into one system, Total Cable Solutions can provide a comprehensive and customized solution for any data center environment.

All of Total Cable Solutions' products are built to last. Not only are they designed with high-quality materials, but they are also flexible enough to adapt to the rapidly changing IT industry. You can switch from standard LC to mini LC at will, swap cables around using the built-in cable management capabilities, and fit more cables into a smaller space, freeing up room for new and improved equipment and essentially future-proofing your data center cabling investment.

Data Center Services

Total Cable Solutions does much more than manufacture and sell cables. Because the company is built on offering the best possible customer service, TCS provides a variety of data center services, ranging from simple advice and recommendations to the actual processes of design, installation, and testing. Companies can choose to install components themselves or request the expertise of Total Cable Solutions employees to set up a design plan for the data center cabling system, install it based on the customer's specifications, and test the system to ensure that it's performing correctly. P

PRODUCT SPOTLIGHT

UPSes

Staco Energy Products FirstLine P 65-250kVA 480VAC UPS

Staco Energy Products has added 160, 200, and 250kVA 480VAC UPS models to its FirstLine P lineup. The company now offers three-phase UPSes for 65-250kVA applications. Up to 98% efficient, the devices use IGBT (insulated-gate bipolar transistor) and DSP (digital signal processor) control to produce true online double conversion with up to eight units in parallel for expandability and redundancy. FirstLine P boasts high efficiency and an impressive power factor, which translate into lower utility costs and a greener footprint. The units protect upstream power supply sources from harmonics and reactive power generated by the load.

- Dual Bus and Dynamic Dual Bus System configurations
- Hot-swappable
- Front, top, or bottom access for placing units against a wall
- Two-year onsite warranty
- Nationwide Service Program

Best For: Computer room and data center applications where affordability, efficiency, reliability, and flexibility are essential.

Contact: (866) 261-1191 | www.stacoenergy.com

Staco Energy Products FirstLine PL 10-100kVA 208VAC UPS

Staco Energy Products FirstLine PL UPS is a parallel-able three-phase UPS meant for 10-100kVA applications. Up to four FirstLine PL units can be run in parallel, providing redundancy with no additional hardware. The units have efficiencies of up to 95% and feature a compact transformerless design that allows for internal batteries up to 30kVA. IGBT and digital signal processor control provides true online, double-conversion technology, while a user-friendly display boasts alarms and LED indicators for bypass, main line, battery powering the load, load on bypass, and normal output.

- Dynamic Dual Bus System configuration
- Space-efficient
- Matching extended battery and options cabinets
- Two-year onsite warranty
- Nationwide Service Program

Best For: Network closets, computer rooms, and small data center applications requiring a high level of available conditioned power.

Contact: (866) 261-1191 | www.stacoenergy.com

Staco Energy Products UniStar P Series 6-10kVA Rack & Tower UPS

Staco Energy Products UniStar P is an online, single-phase parallel redundant UPS available in 6kVA Rack/Universal and 6kVA, 8kVA, and 10kVA Tower models. The products are power- and runtime-scalable, up to 98% efficient, can be configured with up to four units in parallel, and are DSP-controlled. The units feature an LCD/LED mimic panel and easy-to-set user personalization, and they offer continuous power conditioning and smooth uninterrupted switching from utility to battery, handling wide fluctuations without going to battery. The units also have a very low rate of added harmonics, which protects system integrity.

- High input power factor and low current THD
- Flexible Rack/Universal and Tower models
- RS-232 port and optional communications slots
- Hot-swappable battery and matching external battery pack
- Industry-leading three-year warranty
- Nationwide Service Program

Best For: Network closets and small computer rooms requiring a high level of continuous available conditioned power.

Contact: (866) 261-1191 | www.stacoenergy.com

Rackmount Solutions Minuteman Endeavor UPS Battery Backup

Rackmount Solutions' Minuteman Endeavor series of UPS battery backup products delivers an online uninterruptible power supply in a form factor that can be rack-mounted, placed on the floor as a tower, or installed in a cabinet. With a power factor of 0.8 watts and available with capacities up to 3kVA, the Minuteman Endeavor series features hot-swappable batteries, rapid battery recharging, and extended runtime using external battery packs, and it's also RoHS-compliant. Outlet receptacle control for noncritical load shedding is included. The Endeavor series also includes Minuteman SentryPlus monitoring and control software and a front panel display with status indications.

- Simultaneous RS-232, USB, and SNMP communications
- Three-year warranty with up to $200,000 equipment damage insurance
- Manual and automatic testing
- Harmonic distortion control
- Dedicated emergency power off port

Best For: Any situation where form factor flexibility is needed.

Price: Starts at $546.75

Contact: (866) 207-6631 | www.rackmountsolutions.net

Rackmount Solutions Eaton Evolution S UPS Battery Backup

The high-density, line-interactive Eaton Evolution S UPS (1750 VA/3000 VA) is an ideal solution for protecting servers, network devices, storage systems, point-of-sale terminals and other sensitive electronic equipment. The Evolution S can be easily integrated into a wide variety of environments and can provide hours of battery runtime. And, with one of the best price/performance ratios, this UPS offers a low total cost of ownership.

- Line-interactive technology with sine wave output to ride through blackouts and brownouts without stressing the connected devices and high output to protect equipment with PFC power supplies
- Versatile rack/tower form factor available in high density 2U or 3U size
- Extended runtime capabilities with multiple, hot-swappable battery modules (optional)
- One USB port, one Serial/Contacts port and one card slot
- Remote reboot of locked equipment, sequential start-up

Best For: Any situation where form factor flexibility is needed.

Price: Starts at $599

Contact: (866) 207-6631 | www.rackmountsolutions.net

CyberPower Systems PFC Sinewave UPS Systems

The CyberPower CP1500PFCLCD PFC Sinewave UPS System with pure sine wave output and multifunction LCD safeguards computer systems, servers, and networking hardware that use conventional and Active PFC (Power Factor Correction) power supplies. Its AVR (automatic voltage regulation) topology delivers clean, consistent AC power, protecting connected equipment and preventing costly business interruptions. Its patented GreenPower UPS™ advanced circuitry reduces UPS energy costs by up to 75% compared to competitive models. The PFC Sinewave UPS Systems solve the critical compatibility issues of non-sine wave UPS products working with computing systems using Active PFC power supplies (ENERGY STAR 5.0).

- 1,500VA/900W pure sine wave UPS
- Line-interactive topology
- AVR & GreenPower UPS

Best For: Midrange to high-end computer systems, servers, and networking hardware that use conventional and Active PFC (Power Factor Correction) power supplies.

Price: $259.95

Contact: (877) 297-6937 | www.cyberpowersystems.com

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Data Center Systems, Inc. Liebert APM

The Liebert APM is a row-based, modular, high efficiency and high availability mid-size uninterruptible power supply (UPS) system for mission-critical applications. This transformer-free, on-line UPS allows quick power capacity increases with the addition of modular, internal FlexPower™ core hardware assemblies. Each FlexPower™ Module has its own control board - no centralized "Control Module", no powering down to add module, and no single point of failure inherent in competitive products.

- Industry's highest reported efficiency rating up to 94% with virtually flat efficiency curve from 50-100% load
- UPS industry standard, VRLA (Valve Regulated Lead Acid) batteries for increased reliability
- Integral Alber battery monitoring option for increased reliability
- Can be paralleled for capacity and/or redundancy

Best For: Small to medium-sized data centers, server rooms, production areas, labs and testing facilities, and telecommunication centers.

Contact: (952) 403-9900 | www.datacsi.com

HM Cragg Eaton 9155

The Eaton 9155 UPS available through HM Cragg provides premium online backup power and scalable battery runtimes for IT and electrical engineering infrastructure in corporate, healthcare, banking and industrial applications. Packing maximum battery runtime into a very small footprint, the 9155 UPS is a complete power protection solution. The 9155 can be equipped with an integrated, customizable power distribution module that includes a maintenance bypass switch.

- Delivers a complete solution in a sleek tower design
- Offers industry-leading power density with small footprint and more power capacity than comparable UPS units
- Enables paralleling of up to four 9155 UPSes for additional capacity and redundancy

Best For: Enterprises looking for maximum battery runtime in a small footprint.

Contact: (800) 672-7244 | www.hmcragg.com

Critical Power Exchange Powerware 9390-160 (Refurbished)

Protecting critical network and computing systems is the main focus of the UPS system. Not only can this unit provide short term backup for a power outage, but it can also protect against fluctuations such as surges, spikes and sags that you don't see.

- 100kVA Output
- Input 480V - Output 480V
- Two battery cabinets

Best For: Mission-critical data centers, medical facilities, and call centers.

Price: $37,000 (est., depending on run time)

Contact: (877) 315-4176 | www.criticalpower.com

Critical Power Exchange Liebert NPower UPS (Refurbished)

Protecting critical network and computing systems is the main focus of the UPS system. Not only can this unit provide short term backup for a power outage, but it can also protect against fluctuations such as surges, spikes and sags that you don't see.

- 40kVA Output
- Input 208V - Output 208V
- Attached two-panel PDU and battery cabinet

Best For: Mission-critical data centers, medical facilities, and call centers.

Price: $24,000 (est., depending on run time)

Contact: (877) 315-4176 | www.criticalpower.com

Do you have a

NEW PRODUCT

that data center & IT managers would be interested in learning about?

Send your press release or related product information to press@processor.com.

PRODUCT SPOTLIGHT

PDUs

Rackmount Solutions Custom Power Offerings

Even with hundreds of standard power and data protection and distribution products available, you may not be able to find a fit for your application. Rackmount Solutions listens to your requirements and then works with you to design and build a solution. Your application drives the design. A multitude of housing profiles, wiring, and receptacle choices are available. All of Rackmount's products are designed and tested to ensure unmatched reliability and quality, and your configurable solution is proudly made in the USA. Tell Rackmount what you need, and they'll provide a quote.

- Metal housing
- Color coded available
- NEMA 5-15P, 5-20P, or L5-30P
- Twist lock available
- Cord length of your choice
- All custom products made from UL listed components
- 25-piece minimum order

Best For: Data centers with specific custom applications.

Contact: (866) 207-6631 | www.rackmountsolutions.net

Rackmount Solutions InfraPower MT-Monitored Rack PDU Series

The InfraPower MT-Monitored Rack PDU series from Rackmount Solutions is designed for mission-critical data center applications. The units offer local and remote RMS current monitoring, a digital RMS amp meter that is easy to read, and a Web-based GUI for real-time management and monitoring. Available in both vertical and horizontal form factors, the PDUs have between two and 24 receptacles and feature a two-year replacement warranty.

- Sends email alerts
- Users can set their own alert parameters
- Supports a range of data center output receptacles
- Can daisy-chain up to 16 intelligent PDUs

Best For: Mission-critical data center hardware monitoring.

Price: Starts at $440

Contact: (866) 207-6631 | www.rackmountsolutions.net

Rackmount Solutions InfraPower MTS-Switched Rack PDU Series

The InfraPower MTS-Switched Rack PDU from Rackmount Solutions is an industrial-grade offering that provides local and remote RMS current monitoring and control. It features a digital RMS ammeter for amperage monitoring, and the Web-based GUI lets users monitor and control the individual receptacle outlets either locally or remotely. Backed by a two-year replacement warranty, the MTS-Switched Rack PDU Series meets or exceeds all international standards for rack-mounted power distribution units and is UL-, UCC-, and CE-certified.

- Accurate, easy-to-read RMS ammeter for local aggregate monitoring
- Web-based GUI management and control
- Email alerts triggered by user-defined parameters
- Supports a daisy-chain connection of up to 16 intelligent PDUs
- 0U (vertical) and 1U or 2U rackmount styles available

Best For: Mission-critical data center hardware monitoring.

Contact: (866) 207-6631 | www.rackmountsolutions.net

Server Technology POPS Switched CWG-24V5 415V CDU

Server Technology's POPS Switched CWG-24V5 415V 3Ph 20/30A Busway 18xC13 & 6xC19 with PIPS combines all of the features of a Smart CDU with the ability to provide power monitoring per inlet/infeed. This power information per infeed replaces branch circuit monitoring devices typically installed in the power distribution panel or remote power panel (RPP) with higher accuracy and lower cost monitoring of each circuit attached to the CDU. Also included is a mixed outlet Cabinet Power Distribution Unit with the network and serial-based power monitoring and alerting capabilities of the Switched Cabinet CDU plus the ability to monitor:

- Current Load (A)
- Voltage (V)
- Power (W)
- Apparent Power (VA)
- Crest Factor
- Power Factor

Best For: Data Centers that want granular, accurate power information.

Contact: (800) 835-1515 | www.servertech.com

Server Technology POPS Switched CWG-48VD/VY CDU

This Sentry POPS/PIPS CDU combines all of the features of a Switched CDU with the ability to provide power monitoring per inlet/infeed. Power information per infeed includes current, voltage, power, apparent power, crest factor, reactance, power factor and accumulated energy. This information replaces branch circuit monitoring devices typically installed in the power distribution panel or remote power panel (RPP) with higher accuracy and lower cost monitoring of each circuit attached to the CDU.

- Per-outlet data includes current load, voltage, power, apparent power, crest factor, and power factor
- Available in 0U, 1U, and 2U form factors
- Best when used in conjunction with SPM v5.0

Best For: Data Centers that want granular, accurate power information.

Contact: (800) 835-1515 | www.servertech.com

PDUs Direct C-24V2-L30MA

PDUs Direct's C-24V2-L30MA is a metered three-phase rack-mountable PDU that lets users load balance using LED load meters. This zero U unit features 12 IEC C13 and 12 IEC C19 outlets, a three-phase IEC 60309 60A in-feed plug, and three integrated local amp meters. This metered rack PDU provides nearly twice the power density of a standard 208V circuit and robust power distribution for your equipment without taking valuable rack space.

- Steel case enclosure
- Mixed C13 and C19 industrial-grade outlets
- High-quality powder coat
- Input current monitor with true RMS reading
- Hardwired IEC 60309 power cord
- 3-phase/60A

Best For: IT managers who need to save space for equipment and ventilation.

Price: $1,045

Contact: (888) 751-7387 | www.pdusdirect.com

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

PDUs Direct CB-12H2-C20

The CB-12H2-C20 from PDUs Direct is an industrial-grade metered rack-mountable 208V PDU with 12 IEC C13 outlets, a twist-lock NEMA L6-30P in-feed plug, and a local amp meter. This unit provides high power density and dependable power distribution for your equipment racks in a 1U form factor. The Metered PDUs include local LED input current monitoring, which lets users precisely measure the amps drawn and observe the impact of new equipment as well as cumulative current draw.

- Steel case enclosure
- Industrial-grade outlets
- High-quality powder coat
- Input current monitoring with true RMS reading
- Hardwired L6-30P power cord
- .208V/30A

Best For: IT managers who need to save space for equipment and ventilation.

Price: $270

Contact: (888) 751-7387 | www.pdusdirect.com

Black Box Metered Vertical PDU

Black Box's Metered Vertical PDU is a space-saving strip with 24 NEMA 5-20R outlets that measures and displays AC current. It mounts to the vertical rails of a cabinet or rack.

- Three-digit LED display shows current draw
- Alarm notifies you when current threshold has been reached
- Includes a 15-foot (4.5m) NEMA L5-20P power cord

Best For: Adding outlets in tight spaces while keeping track of current draw.

Price: $185.95

Contact: (877) 877-2269 | www.blackbox.com

HM Cragg Eaton Advanced Monitored ePDU

Designed for high-density, mission-critical server applications, the Eaton Advanced Monitored ePDU available through HM Cragg provides maximum power for both standard and blade servers. Employing multiple configurations, the Easy-Read LCD screen and remote power management with distinctly colored circuits, the ePDU ensures easy management and monitoring down to the outlet level.

- Vertical and horizontal mounting options
- Rugged industrial construction and design
- EMI/RFI and Spike/Surge suppression available in most models
- Products can be customized to fit your needs including military COTS and data center applications

Best For: High-density, mission-critical server applications.

Contact: (800) 870-2248 | www.hmcragg.com

Black Box Outlet-Managed PDUs

The Black Box Outlet-Managed PDU provides complete power control for network devices, including capabilities such as remote and timed individual outlet switching, auto on/off/reboot, load shed switching, and outlet sequencing. It enables power switching for individual network devices or for groups of equipment in an effort to allow data center administrators to save energy by automatically powering down equipment at night or on weekends when it's not being used.

- Monitors equipment power, changes in current levels, circuit breaker status, temperature, and unauthorized access attempts
- Sends alerts by email, text, SNMP, SYSLOG, or audible alarms
- Generates reports with detailed records of current and power consumption
- Can be set to ping equipment at set intervals and reboot if there's no response

Best For: Reducing energy and personnel requirements in data centers.

Contact: (877) 877-2269 | www.blackbox.com

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to read articles and view thousands of products online free of charge to qualified readers.

PRODUCT SPOTLIGHT

Fire Protection

Fike ProInert Gas Fire Suppression System

Fike's ProInert system uses inert gas fire suppression technology to put out fires quickly and safely. The ProInert agent is discharged at a steady flow rate, preventing destructive turbulence, and only the necessary amount of extinguishing agent is released. The system also uses environmentally friendly fire suppression agents.

- Replace your existing, and potentially harmful, fire suppression system with an environmentally friendly one
- Reduce installation costs by as much as 60% on hardware with smaller venting areas
- Can be placed in almost any non-critical area
- Directional selector valves decrease the chance of additional infrastructure damage

Best For: Companies that need to replace older fire suppression systems to support a green initiative and save money.

Contact: (800) 937-3453 | www.fike.com

Fike SigniFire IP Video Flame & Smoke Detection Camera

The SigniFire IP represents a family of turnkey flame, smoke, and intrusion detection camera solutions that visually detect the presence of fire or smoke at its source, independent of airflow in the area. This technology offers a critical advantage for early warning fire detection, identifying and reacting to fire, and protecting lives and property.

- Detects flame in seconds
- Supplies vital, situational, live video to remote locations
- Provides video surveillance capabilities
- Communicates with fire alarm systems
- Provides prerecorded video forensic evidence for future fire investigations

Best For: Enterprises looking to identify smoke in large spaces and have video evidence for insurance purposes.

Contact: (800) 937-3453 | www.fike.com

Fike ECARO-25 Clean Agent Suppression System

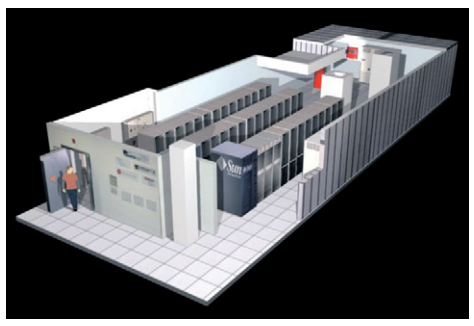
Fike's ECARO-25 system uses a gaseous clean agent to suppress fires without damaging high-end equipment, electronics, and irreplaceable items with water. It uses an agent called FE25 made by DuPont that absorbs heat energy at the molecular level so a fire can't sustain itself. The system uses Impulse Valve Technology, which efficiently and effectively puts out fire by combining the reliability and efficiency of a rupture disc with the flexibility of electric actuation.

- Unique, environmentally safe fire-suppressing agent
- Protects expensive infrastructure from fire damage as well as additional water damage
- Use your existing Halon pipe network and update it with the ECARO-25 system

Best For: Enterprises that need an efficient fire protection system that prevents excessive damage.

Contact: (800) 937-3453 | www.fike.com

Firelock Modular Server Vaulting



With Firelock's Modular Server Vaulting, you get a custom-designed vault that's built to suit your needs. A Firelock modular vault is an enclosure with integrated environmental monitors and fire suppression components, which makes it easier to protect the contents from a fire on the outside. The vaults protect your valuable components from fire while you monitor the servers and equipment from a remote location.

- Class 125 four-hour rated vault door
- Smoke- and heat-activated hydraulic door closer
- Environmental/alarm monitoring
- CCTV surveillance
- Novec 1230 fire suppression
- Watershield roof deck
- Fire-rated electrical cable trays
- Master power switch

Best For: Enterprises that want to ensure mission-critical operations by protecting key equipment in an isolated, secure, and fire-protected area.

Contact: (610) 756-4440 | www.firelock.com

Peripheral Manufacturing Inc. Aero-K®

Aero-K® is a new aerosol technology fire suppression system, 10 times more effective than other fire extinguishing agents. Aero-K® is designed to protect enclosed spaces such as server and telecommunication rooms. Aero-K® uses smoke detection, electronic activation, or can be heat activated. An Aero-K® system requires no floor space or piping and can be expanded, reduced, or moved.

- Environmentally friendly, 100% green
- Non-oxygen-depleting
- Won't corrode steel, plastic, nickel, brass, zinc, copper, or other commonly used composites
- Leaves little residue after venting
- Has a 10-year shelf life
- On GSA Advantage: GS-07F-0462V
- IT applications, marine, wind turbine, vehicle engines, and many more

Best For: Information technology and telecommunications industries at risk of electrical fire hazards. Also used in B-class fuel storage areas.

Contact: (800) 468-6888, ask for Ron
www.fire-suppression-systems.com

Simplex FlexSim

The FlexSim solution from Simplex provides data center managers with a fire-rated vinyl solution option for hot aisle/cold aisle isolation. The FlexSim flexible curtain vinyl is provided in the standard fire-rated version and a second version, which includes built-in anti-static inhibitors. FlexSim is the first domestically produced clear, flexible curtain vinyl to meet the ASTM E-84 Class 1 rating for lower flame and smoke emissions in a fire.

- Two versions: FlexSim FR for standard applications and FlexSim FR AS for anti-static applications
- Meets or exceeds fire marshal requirements
- Made with non-phthalate plasticizers and non-halogen additives
- Complements existing Simplex curtain materials

Best For: Data center managers in need of a safe, fire-tested and approved material for hot aisle/cold aisle isolation.

Contact: (800) 854-7951 | www.simplexstripdoors.com

PRODUCT SPOTLIGHT

Servers

Aberdeen AberSAN ZXP

Aberdeen's AberSAN ZXP gives enterprises the simplicity of a NAS server within a SAN environment by combining block-level iSCSI and Fibre Channel connections with multi-user network sharing. The AberSAN ZXP is efficient, easy to use, and flexible, featuring unlimited snapshots and unlimited file system sizes; it's also expandable up to 4U and scalable, meaning enterprises can add memory or CPU performance as needed.

- End-to-end data integrity
- Thin provisioning
- Block- and file-based replication
- In-line deduplication
- Shared storage pools from any combination of storage hardware

Best For: Enterprises looking for a flexible solution that will allow them to add computing power or capacity as their needs grow.

Price: Starts at $30,806

Contact: (800) 500-9526 | www.aberdeeninc.com

Aberdeen Petarack

Based on Nexenta's Nexentastor ZFS file system, the Petarack from Aberdeen is a storage powerhouse that can hold 1 petabyte on its own or can be scaled to hold up to 5 petabytes of data with additional racks, all at a price point that's attainable for smaller enterprises. It features an intuitive Web-based interface and is cloud- and virtualization-ready, offering such features as 128-bit addressing, thin provisioning, and unlimited snapshots. Each head unit features dual Xeon processors and 48GB of memory, which is expandable to 192GB.

- Built-in enterprise-level 10GbE iSCSI target, with option for Fibre Channel
- ZFS file system for fast, secure, scalable storage
- Block- and file-based replication
- Integrated search function
- Includes LCD-KVM
- Hot-swap hard drive bays with in-rack access
- Onsite installation; five-year warranty

Best For: Small and midsized companies that need scalable, manageable storage at a price that won't break the bank.

Price: $495,000

Contact: (800) 500-9526 | www.aberdeeninc.com

xByte Technologies Dell PowerEdge R610

The Dell™ PowerEdge™ R610 is a 2-Socket rack server featuring massive memory potential, advanced remote management, multiple RAID options, and an ideal balance of drive capacity, processing power, redundancy and value in a 1U chassis.

- Reduced rack space with small 1U chassis
- 192GB maximum memory
- Processing power with up to 12 total cores
- Up to 6 hard drives

Best For: Server virtualization, database servers, small and medium business applications, and multiple web servers.

Contact: (888) 929-8348 | sales@xbyte.com
www.xbyte.com

Supermicro® Data Center Optimized SuperServer® Systems

The broad Supermicro Data Center Optimized (DCO) line consists of servers utilizing Supermicro's flexible Wide I/O (WIO+) architecture, systems that provide enhanced network and storage expansion options, and servers designed to withstand up to 47°C operating temperature environments, making it easier to achieve a better data center Power Usage Effectiveness (e.g., a PUE < 1.10 for example). DCO solutions reduce cooling costs and take full advantage of Intel® Turbo Boost Technology 2.0 for maximum performance.

- 768GB of ECC Reg. DDR3-1600MHz SDRAM support in 24 DIMMs
- 4 GbE LAN ports or dual 10GbE LAN ports
- Up to 6 PCI-E 3.0 slots
- Redundant Platinum Level high efficiency (94%+) power supplies
- Dual Gigabit Ethernet LAN
- IPMI 2.0 with Virtual Media/KVM over dedicated LAN
- Multiple 1U and 2U form factor models
- Intel® Xeon® E5-2600 family of dual socket processors

Best For: Data Center, Cloud Computing and Enterprise IT.

Contact: (408) 503-8000 | www.supermicro.com

Supermicro® SuperStorage

Supermicro's SuperStorage server solutions include everything customers need for a reliable and scalable storage foundation. Standard features include the highest performance computing power using the latest Intel® Xeon® E5-2600 family of dual socket processors. Direct attached HDD backplane and expander backplanes are available for application-specific solution optimization.

- Up to 768GB of ECC Reg. DDR3-1600MHz SDRAM in 24 sockets
- Up to 7 PCI-E 3.0 slots provide exceptional I/O performance
- Redundant Platinum Level high efficiency (94%+) power supplies maximize operational efficiency
- Flexible market entry points from 2U / 12 bays to 4U / 36 bays
- Hardware RAID and ports for JBOD expansion
- Quad Gigabit LAN and remote management using IPMI 2.0 with dedicated LAN

Best For: Data Center CPU Intensive Storage, Virtual Storage Environments, Single Instance Storage & Data Deduplication, Data Replication & Business Continuity, and Virtual Tape Library.

Contact: (408) 503-8000 | www.supermicro.com

SRC Computers, LLC Scalable Systems & Servers

Scalable multi-rack systems and servers from SRC Computers feature reconfigurable MAP® processors and can reduce the footprint and power consumption by orders of magnitude compared to microprocessor-based systems, while meeting the needs of the most demanding applications. Using the Carte™ Programming Environment, these systems are also very programmer-friendly and fully software-compatible with SRC Computers' embedded and desktop products.

- Housed in 19-inch 35U racks
- Includes system console, power management system, and network switch
- 28U available for customer-selected nodes
- Cluster configuration offers scalability and flexibility
- Hi-Bar® Switch Network with Multi-Ported Common Memory configuration allows for additional capability of managed data movement

Best For: Compute-intensive or data movement applications in such areas as textual search, signal processing, image processing, medical imaging, and financial analytics.

Contact: (719) 262-0213 | sales@srccomputers.com
www.srccomputers.com

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

eRacks NAS50

The NAS50 Network Attached Storage file server from eRacks is a fully customizable server with the capacity to store 200 terabytes of data. The NAS50 supports SAS or SATA hard drives and works with either Intel or AMD processors, including Intel's Sandy Bridge Xeon series in either single, dual, or quad configurations. AMD options also include dual and quad configurations with AMD's Opteron series. The server specializes in Windows and open-source operating systems.

- Ultra-fast 6Gbps transfers with SATA III
- Chassis dimensions: 15.6 x 16.9 x 27.2 inches (HxWxD)
- Includes a one-year full warranty and three-year limited warranty
- Choice of Intel or AMD processor and configuration
- Can be fitted with 512GB of DDR3 memory, 10GbE Network cards, and 6GBps RAID controller cards
- Hot-swap 3.5-inch SAS/SATA drive bays

Best For: Cloud admins who want more storage for their users and data center managers looking for enterprise-level, high-performance open-source rackmount servers that include the latest products and are easily upgradeable.

Contact: (714) 532-5322 | eracks.com

eRacks STUDIO7

The STUDIO7 from eRacks is an audio creation and production computer system accommodating up to 24GB of DDR3 memory. This customizable rackmount chassis accommodates four 5.25-inch drive bays used as either removable hot-swap storage or DVD-ROM drives. The STUDIO7 is an ultra-quiet rackmount, with noise levels below 32Db. The system is preloaded with a set of open-source audio and video software applications with no licenses or upgrade fees required.

- Linux-based and includes Intel Core i7 CPU and Intel X79 chipset
- Packaged with Maudio and Nvidia audio and video devices
- Solid-state drives standard
- Integrated USB3, SATA3 controllers
- Standard chassis dimensions: 5.25 x 19 x 20.8 inches (HxWxD); shorter depth chassis available
- Includes a one-year full warranty and three-year limited warranty
- Integrated Gigabit Ethernet
- Two PCI slots and PCI-E for added network connectivity, graphics, audio, etc., and front USB connector

Best For: Those looking for a professional, studio-level audio and video server with open-source software applications.

Contact: (714) 532-5322 | eracks.com

Hardcore Computer Liquid Blade Server

The Liquid Blade Server from Hardcore Computer is the only rack-mounted high-performance server with patented total submersion technology, a revolutionary cooling system that is 1,350 times more efficient by volume than air cooling. Submersion technology keeps servers running cooler and more reliably with the highest level of sustained performance. Liquid Blade eliminates the requirement for inefficient and expensive air-conditioning systems, reducing cooling costs by as much as 80%.

- Exceptionally fast, smart, and reliable dual Intel Xeon 5500 and 5600 CPUs
- Available Intel Xeon 5698 CPUs with guaranteed overclocking beyond 4.7GHz
- Ultimate simulation/visualization server featuring Nvidia Tesla and Quadro GPU cards
- 40Gbps InfiniBand, 10Gbps Ethernet, and other connectivity options available
- Up to six SSDs supported by motherboard SATA II

Best For: Applications where reliability and availability are mission-critical.

Price: Starts at $5,684

Contact: (866) 530-0101 | www.hardcorecomputer.com

Portwell CAR-1000

Unlike commercial motherboard-based systems, the CAR-1000 1U rackmount communication appliance from Portwell features a reset button that will change the system back to the manufacturer's default setting, if required. CAR-1000 is also perfect for customers who need six Gigabit Ethernet ports and applications that require the high performance and low power consumption of Intel's dual-core Atom D510 processor. CAR-1000 is offered with a choice of three Intel Atom processors—single-core N450 or D410 and dual-core D510—for flexible customized configuration.

- Intel Atom D510, D410, or N450 processor and ICH8M I/O controller
- Supports fanless solutions when built with Intel Atom processor N450
- Up to 4GB DIMM with D510/D410; up to 2GB DIMM with N450
- Six Gigabit Ethernet ports with two bypass segments
- Mini PCI slot for Wi-Fi and Crypto card option

Best For: Network security solutions to SOHO and remote/satellite offices.

Contact: (877) 278-8899 | www.portwell.com

Portwell CAR-4010

Portwell's CAR-4010, a functional and modular 1U rackmount communication appliance, is based on the Intel C206 chipset, which offers a wide range of CPU support, including Intel Xeon E3-1200 processors and Intel Core i3-2120 processors. CAR-4010 is a modular platform designed to help customers maximize flexibility and cost savings. Customers have options to install two PCI-E add-on cards or additional Portwell Ethernet modules. CAR-4010 also supports IPMI 2.0 remote network monitoring and management.

- LGA1155 Intel Xeon E3-1200 Series processors and Intel C206 chipset
- Dual-channel DDR3 1333/1066 memory platform, up to 16GB
- Eight onboard RJ-45 Gigabit Ethernet ports with PCI-E Gen. 2.0 technology
- Two software-controlled Gen. 2 bypass segments

Best For: Server virtualization and network security solutions for midsized and large enterprises.

Contact: (877) 278-8899 | www.portwell.com

Aspen Systems Summit C220I.1F 2U Twin2 Server

The Summit C220I.1F packs unprecedented computing performance and data capacity inside a space-saving, energy efficient 2U chassis. The Summit C220I.1F includes four hot-pluggable systems (nodes). Each of these nodes supports dual processors using the latest Intel Xeon E5-2600 Series, Romley CPUs. Each node holds up to 256GB of ECC Registered Memory and three, Hot-Swap, 3.5" SAS/SATA hard drives.

- 2U 4-Node Rackmount Server
- Dual Socket Intel Xeon E5-2600 Series Processors (per node)
- Eight DDR3 DIMM Sockets (Up 256GB DDR3 ECC Reg) (per node)
- Three 3.5-inch Hot-swap SAS/SATA hard drive bays (per node)
- Dual-Port Gigabit Ethernet (per node)
- 53Gbps FDR Infiniband
- IPMI KVM over LAN support
- 1620W High-Efficiency Redundant Power Supply

Best For: High-density data centers and high-performance computing applications and clusters.

Price: Starts at $8,200

Contact: (888) 227-1286 | www.aspensystemsdirect.com

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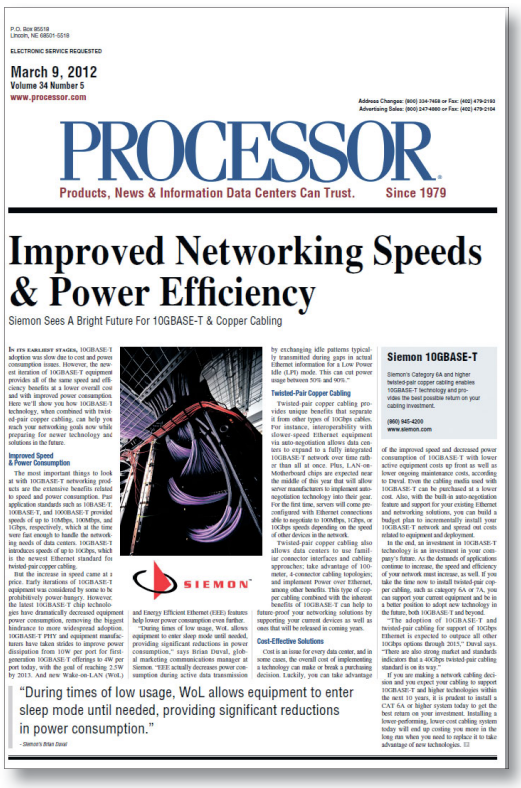
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Volume 34 Number 5
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Improved Networking Speeds & Power Efficiency
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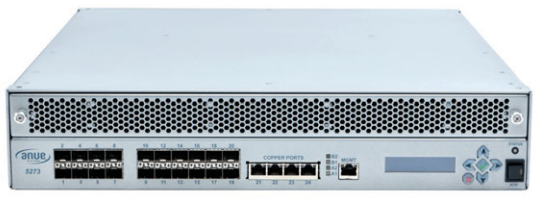
PRODUCT SPOTLIGHT

Networking

Anue 5273 Net Tool Optimizer



The Anue 5273 NTO (Net Tool Optimizer) is a carrier-grade, NEBS Level 3-certified solution that helps service providers achieve optimal network performance while meeting the increased bandwidth needs required by growing mobile and video content. The Anue 5273 NTO aggregates data from multiple network access points in a network and ensures the delivery of critical network traffic to the essential monitoring tools for complete network visibility. By enhancing the power of the existing network monitoring tools, network performance improves, team productivity increases, and potential risk of network outages decreases.

- A NEBS Level 3-certified device that meets high-bandwidth demands of mobile and video content
- Add an optional Advanced Packet Processing solution for deduplication, extended burst protection, MPLS stripping, and packet trimming
- Other add-on solutions include an expansion module for CX4, XFP, and SFP+ interfaces and a remote power supply for redundancy

Best For: Any data center requiring telecommunications and cable service-provided network monitoring switches.

Price: Starts at $30,000

Contact: (877) 268-3269 | www.anuesystems.com

Anue 5288 Net Tool Optimizer

The 5288 NTO (Net Tool Optimizer) is a high-density network monitoring switch that provides up to 64 10GbE ports or up to 16 40GbE ports in a compact 2U form factor. The Anue 5288 NTO aggregates data from multiple visibility points in a network and ensures the delivery of critical network traffic to the essential monitoring tools. The Anue 5288 NTO helps large enterprises monitor an increasing number of 1GbE, 10GbE, and 40GbE ports with their existing monitoring tools.

- Features front-to-back airflow and scalability for configuration options
- The non-block architecture (with 640Gbps total bandwidth) allows for network access point and full line monitoring tool traffic sharing
- Saves energy with a 2U design and low power consumption
- Capable of reducing network downtime

Best For: Enterprise data centers with increased bandwidth requirements due to higher processor density, virtualization, and SANs.

Price: Starts at $72,000

Contact: (877) 268-3269 | www.anuesystems.com

Extreme Networks Ridgeline

The Ridgeline network and service management tool from Extreme Networks is a scalable, full-featured solution designed to provide timely updates for IP-based networks while simplifying network configuration, provisioning, and troubleshooting. Data center managers can get a topology view of the network, monitor with flexible scripts, and acquire network-wide data for both devices and users.

- Customizable installation lets administrators control the service management features
- Data Center Feature Pack supports ExtremeXOS network virtualization
- EAPS monitoring and configuration checking
- Includes audit logs and role-based access control

Best For: End-to-end monitoring of critical enterprise network processes.

Contact: (888) 257-3000 | www.extremenetworks.com

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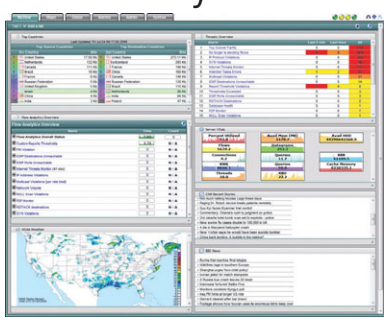
that data center/IT managers would be interested in learning about?

Send your press release or related product information to press@processor.com.

Plixer Scrutinizer NetFlow & sFlow Analyzer



The Scrutinizer NetFlow Traffic Analytics solution from Plixer provides organizations with powerful insight into application traffic, bandwidth utilization, and security threats while providing powerful troubleshooting and forensics capabilities.

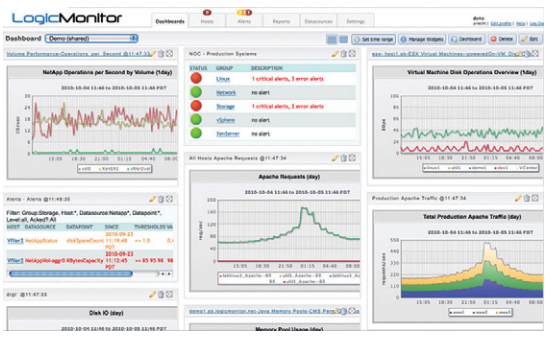
- Data center managers can archive infinite years of data during different periods
- Receive reports for top applications, conversations, flows, protocols, subnets, and other devices
- Supports reporting and alarming for SYN, NULL, FIN, XMAS scans, RST/ACK worms, and more

Best For: Monitoring, saving, and assessing data movement on the network.

Price: Free 30-day trial; $3,495 to upgrade

Contact: (207) 324-8805 | www.plixer.com

LogicMonitor Hosted Monitoring



For companies that don't have the staff resources to devote an engineer to install, configure, and maintain an on-premises monitoring system, LogicMonitor's hosted monitoring takes the hassle out of monitoring. With no monitoring infrastructure to maintain, and requiring just minutes to deploy, LogicMonitor provides dashboard views of the health of all your networking gear, servers, applications, databases, storage, and virtual and cloud-based infrastructure, all from a single Web-based console, making it easier to pinpoint the cause of performance issues within complex technology stacks. A powerful alerting system proactively notifies your staff via email and SMS message to issues before they negatively impact your business.

- Unlimited 24/7 email and SMS alerts
- Alert routing and escalation
- Historical trending data stored for one year
- Preconfigured monitoring templates for most data center devices

Best For: SMBs, enterprises, and service providers that don't want to build and maintain their own monitoring infrastructures.

Contact: (888) 415-6442 | www.logicmonitor.com

PRODUCT SPOTLIGHT

Overhead & Underfloor Cable

Rackmount Solutions Copper or Fiber Spools

Now there is an easy, affordable way to handle excess copper or fiber optic cables. Middle Atlantic's plastic cable spools provide network installers a Rackmount solution for securely controlling excess cable slack. These spools promote and keep the proper bend radius to prevent breaks and kinks. Available in three different depths to accept various cable densities, spools can be used horizontally or vertically.

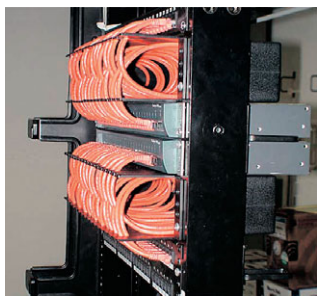
- Easy, efficient way to preserve proper bend radius of fiber or copper cables
- Use with 2 post or 4 post, floor mounted or wall mounted rack
- Available in 1.25", 3" or 8" depths
- Spools may be purchased separately in packs of 4 or 10
- RoHS compliant

Best For: Managing excess copper or fiber optic cable lengths in a 19" Rackmount environment.

Price: Starts at $37

Contact: (866) 207-6631 | www.rackmountsolutions.net

Rackmount Solutions Neat Patch Cable Organizer



Tired of messy networks? Place the Rackmount Solutions Neat Patch kit between a switch and a patch panel, and you'll never have another cable mess. We guarantee it!

- Promotes bend radius compliance in patch cable management
- Patch cables are easier to trace from panel to electronics
- Priced less than the leading brands of horizontal management
- Uses a patented plastic molded design that is non-conductive. Wire with confidence—there will be no electrical issues such as surges and grounding since the plastic fingers are not riveted to metal or metal D-rings.

Best For: Enterprises building a new network or wanting to clean up an existing installation.

Price: Starts at $59.34

Contact: (866) 207-6631 | www.rackmountsolutions.net

Total Cable Solutions Universal LC™

Universal LC™ makes you future-proof. Now there is no need to make additional investments due to increased demand for mini LC. The Universal LC™ addresses the increasing demand for mini LC connectors in high-density data centers by incorporating a universal, adjustable connector that will work in both LC and mini LC ports.

- Adjustable pitch incorporating the standard LC (6.25 pitch) as well as the mini LC (5.25 pitch). Measures 11.4 mm, making side-by-side mini SPF + transceivers possible.
- Reversible polarity
- Rapid Release Latch™ uses a simple "push/pull" method for removing the connector from a crowded panel.
- High-density 2 mm Jacket creatively designed with both simplex fibers into one jacket while still terminating into a duplex LC or SC connector saving you over 66% valuable space.
- Bend-insensitive fiber prevents fiber breakdown and substantial power loss

Best For: High density data centers looking for a fiber cable solution for both LC and mini LC.

Contact: (888) 235-2097 | www.TotalCableSolutions.com

Black Box Cable Support Hangers

Black Box's Cable Support Hangers hold the same amount as J-hooks but at half the cost. These loop hangers provide sturdy support for all types of communications cable— CAT5/5e/6 and fiber—without sagging, bending, or damaging the cable. What makes these loops so versatile is that they can be mounted and rotated in virtually any direction on the beam either perpendicularly or parallel. Better yet, they can be stacked to hang multiple bundles of cable. Flexible and non-metallic, these loops are easy to use and far more cost efficient than traditional methods such as cable trays. The hangers come in three sizes and can hold up to 5-inch bundles weighing up to 75 pounds.

- Hold the same amount as J-hooks at half the price
- Mount and rotate in any direction on the beam
- Flexible, non-metallic, plenum-rated, and UL®/CSA listed

Best For: Economically hanging bundles of communications cable in environmental air handling spaces.

Price: Starts at $5.39 for a 10-pack.

Contact: (888) 533-1576
www.blackbox.com/go/CableHangers

Black Box Fiber Optic Storage Rings

Safely store excess fiber optic cable with Black Box's Fiber Optic Storage Rings. The rings maintain the proper bend radius and prevent kinking in excess fiber optic cable. The rings come in two sizes — 12- and 24-inch diameters — and hold 30 to 50 feet of excess cable, depending on the cable type. They are designed for use in the entrance facility, intermediate and main distribution frames, and in wiring closets.

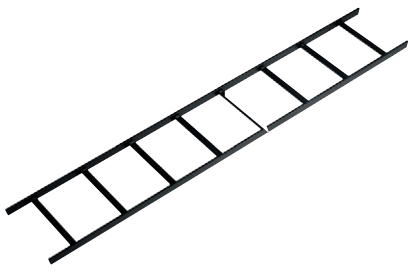
- Maintain proper bend radius and prevent kinks
- Hold 30 to 50 feet of excess cable
- Use in the intermediate and main distribution frames and in wiring closets
- Mount to the wall with wood screws

Best For: Storing excess fiber cable in entrance facilities and intermediate and main distribution frames.

Price: Starts at $29.95

Contact: (888) 433-5049 | www.blackbox.com/go/FOSR

Black Box Ladder Rack & Accessories



Black Box's Ladder Rack and accessories enable you to create a cable management solution that fits your installation exactly. The Ladder Racks consist of 16-gauge tubular steel, come in 6- and 10-feet lengths, are 12 inches wide, and are available in black or gray colors. Most elements of the solution are guaranteed for life and built to fit anywhere, including ceilings, walls, and wiring closets.

- The 16-gauge tubular steel cable management solution for routing cable along ceilings and walls, and in closets
- Create a custom cable management solution with 6- and 10-foot racks and a wide array of connecting and support hardware
- Choose from black (RM650) or gray (RM663)

Best For: Companies of all sizes in need of a cable management system that can be routed along ceilings and up walls.

Price: Starts at $52.95 for the 6' x 12 Ladder Racks.

Contact: (724) 746-5500 | www.blackbox.com

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Management

PDU Cables UL Listed Power Distribution Cable Assemblies

Manufacturer of UL Listed, underfloor power distribution cable assemblies, PDU Cables is fast, reliable, and knowledgeable while remaining cost-effective in providing the industry's highest-quality power cables. Use prefabricated, color-coded, and labeled cables to excel in data center cleanliness and organization. UL Listed and Hi-Pot tested, every cable is guaranteed not to fail. PDU Cables provides customers with 24-hour turnaround and standard transit times of one to three days to most U.S. locations (cable expedition available). Currently more than 5,000 data centers use PDU Cables' products to save time and labor and to reduce overall project costs.

- UL Listed and tested power distribution cables
- Molded cord assemblies
- Drop-down SO cord

Best For: Raised floor data center applications.

Contact: (866) 631-4238 | www.pducables.com

PDU Cables Air-Guard Cable Seal

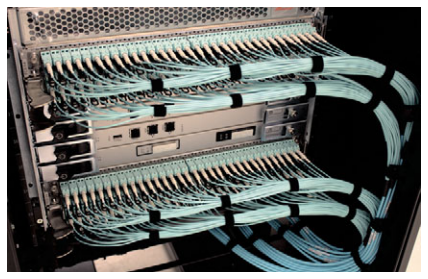
The Air-Guard cable seal from PDU Cables seals access holes used to route underfloor power distribution cables and communications cables through a data center's floor. The seals provide two-piece design options to manage cabling by allowing users to remove tiles without having to disconnect cables. Additionally, the seal immediately saves energy by significantly minimizing cool air loss while improving static pressure to keep data center equipment from overheating.

- Flexible, simple cable routing via removal of floor tiles without disconnecting equipment
- Reduces air loss in plenum-cooled floors and improves underfloor static pressure
- Extends life of cooling equipment

Best For: Sealing any size of cable opening in a raised data center floor environment.

Contact: (866) 631-4238 | www.pducables.com

CTI Quantum Cabling Solution™



CTI's Quantum Cabling Solution is a user-friendly, highly efficient cable management solution that lets users cable a fully loaded enterprise-class director in half the time of traditional cabling methods. The Quantum is highly manageable and improves troubleshooting and move/add/change activities as compared to traditional cabling methods when deployed with TIA-942-compliant solutions. The Quantum Cabling Solution can handle the highest port count hardware on the market while utilizing the least amount of valuable rack space. It's currently available for Brocade and Cisco 9513 enterprise-class directors; additional configurations are available upon request.

- Fast, simple installation
- Compliant with TIA-942 Telecommunications Infrastructure Standard for data centers
- Compatible with high-density cabling environments

Best For: Cable management for high-density switches.

Contact: (888) 446-9175 | www.methode.com/data

Upsite Technologies HotLok® Round 4-Inch Rack Mount Grommet

The HotLok Round 4-Inch Rack Mount Grommet is the latest patent-pending thermal management solution from Upsite Technologies, designed to seal 4-inch cable openings in server rack cutouts to block bypass airflow and maximize cooling system efficiency. The grommets are engineered with patented Hybrid Brush Technology that offers exceptional sealing and airflow management, which has been proven to surpass other leading brush products on the market. This new design automatically seals around cables with no additional maintenance or monitoring required. Sealing server racks greatly reduces costly bypass airflow, increasing usable cooling unit capacity and ensuring maximized efficiency from HVAC equipment.

- Increases existing cooling unit capacity
- Improves IT equipment reliability
- Supports increasing rack and cabinet density
- An affordable airflow management solution
- Allows installation or removal without disturbing cables
- RoHS compliant

Best For: Enterprises looking to maximize cooling efficiency affordably and effectively.

Contact: (888) 982-7800 | www.upsite.com

Upsite Technologies KoldLok® Surface Mount Raised Floor Grommet

Measurements taken at multiple data centers show that, on average, 60% of valuable conditioned air is not reaching the air intake of IT equipment due to unsealed floor openings. This lost air, known as bypass airflow, contributes to IT equipment hotspots, cooling unit inefficiencies, and increasing infrastructure costs. The KoldLok Surface Mount Raised Floor Grommet is specifically designed to address bypass airflow and its detrimental effects on data center cooling. The ability of the KoldLok Surface Mount Raised Floor Grommet to cover a large tile area makes this product particularly useful for sealing a variety of perimeter openings. It is engineered and designed to seal a variety of existing raised floor tile cutouts and allow flexibility of removing tiles without capturing cables. This product is available in three model sizes: original, large, and extra large.

- Makes re-cabling easier
- Impact-resistant, durable, and RoHS compliant
- Allows tiles to be moved without capturing cables
- Multi-layer, opposing filaments
- 0.01-inch diameter upper filaments
- 0.02-inch diameter lower filaments

Best For: Sealing cable openings in existing data centers.

Contact: (888) 982-7800 | www.upsite.com

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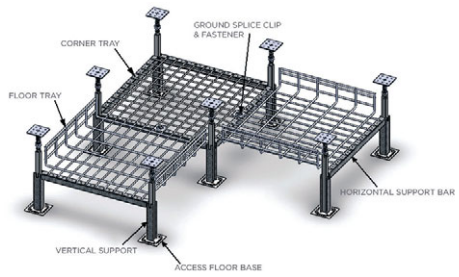
PRODUCT SPOTLIGHT

Access Cable Trays FloorFlex Cable Tray System



Access Cable Trays' FloorFlex is a cable tray system designed for use beneath an access floor. Cable tray sections are available in various heights and widths to let users customize their trays according to their cabling needs. The system is also available in various heights above the slab to match any access floor depth. Designed to snap together, FloorFlex offers the ultimate in flexibility and ease of installation.

- No special tools or cutting required
- Available as standard single-level with optional two-level and three-level designs
- No need to remove and replace access floor structural components to install
- Brings cabling as close as 2 inches from the access floor surface for easy access and management
- Fits all access floor manufacturers' makes and models
- Easily reconfigurable to accommodate changing needs
- Made in the United States

Best For: Data centers, general offices, or any other facility utilizing an access floor, as well as data center renovations and new constructions.

Contact: (866) 777-2576 | www.accesscabletrays.com

iStarUSA Group Claytek WA-PP24-C6

From iStar's Claytek division, the WA-PP24-C6 is a 24-port 1U CAT 6 patch panel that's designed for high-speed transmissions cabling and suitable for standard 19-inch rack mounting. Claytek also makes the panel available in 1U 12- and 16-port models and 2U 32- and 48-port models.

- For TIA/EIA-T568-B/A wiring configuration
- 1.75 x 1.25 x 20 inches (HxWxD)
- Black electrostatic powder-coated steel
- RoHS compliant
- Category 6 certified

Best For: Data centers and other organizations requiring affordable, effective cable management.

Price: $101

Contact: (888) 989-1189 | www.istarusa.com

iStarUSA Group Claytek WA-CM1UB 1U Cable Management Rack Kit

iStar's Claytek division provides an economical and effective solution for cable clusters. The WA-CM1UB takes up only one unit of space in standard 19-inch racks and enclosures and helps to keep cables organized. Cables can be easily threaded through the panels, and excess wiring can be stored inside the management casing. Claytek also offers a 2U model, the WA-CM2UB.

- Easy to install and manage
- Economic solution to cable clutter
- Sturdy design protects cables from damage

Best For: Data centers and other organizations requiring affordable, effective cable management.

Price: $50.95

Contact: (888) 989-1189 | www.istarusa.com

Device Technologies Spring-Fast SL Series Encapsulated Metal Grommet Edging

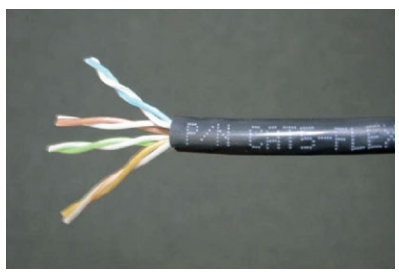
The high-performance SL Series grommet edging from Device Technologies is the company's next-generation wire protection solution. The SL Series meets specifications for Telcordia; BICSI; UL94V-0; and a multitude of performance attributes across various industries, including aerospace, HVAC, medical, power, and transportation. As with all Spring-Fast grommet edging series products, the SL requires only finger pressure to snap on, locking into place to conform to edge requirements. It offers a smooth protective cable, wire, and fiber interface on edges of cabinets, enclosures, and rack sheet metal and/or sharp edges of composite, plastic, or perforated materials.

- Available in a range of sizes with application thickness of 0.02 to 0.13 inches
- RoHS/REACH compliant
- No adhesives needed
- Reels or cut to length
- Indoor/outdoor

Best For: Data centers; telecommunications, equipment rooms, and lab spaces; access floors and underfloor cable management; and racks and chassis.

Contact: (800) 669-9682 | www.devicetech.com

Clark Wire & Cable CAT5-FLEX



The CAT5-Flex cable is a truly distinctive product. The black pressure extruded polyurethane jacket makes this cable extremely resistant to cuts and abrasions, while maintaining unbelievable flexibility. The stranded conductors give a very high flex life, minimizing breakdowns. A true field cable resistant to sunlight, oil, and water. Compatible with standard RJ45 connectors (stranded conductor rated).

- Exceeds TIA-568-B Specifications
- Moisture Resistant
- Oil Resistant
- Tough UV and abrasion Resistant Jacket

Best For: Data centers in need of a truly flexible cable.

Contact: (800) 222-5348 | www.clarkwire.com

HM Cragg Cabling Infrastructure Solutions

Investing in the correct cabling infrastructure that can handle current usage as well as future growth, and taking a proactive approach to managing and testing will help prevent problems that could cause network interruptions or catastrophic failures.

HM Cragg offers everything from Category 5 to Category 6A cabling in either Ethernet or fiber. We also offer pre-terminated boxes for quick deployment of fiber or Ethernet systems.

Also look to HM Cragg for all your unique cable needs. Whether you need stock or custom cables, just a few or thousands! HM Cragg can provide custom cable capabilities, from simple labeling of stock products to advanced assemblies with multiple connectors.

Best For: Data centers with unique connectivity needs.

Contact: (800) 870-2248 | www.hmcragg.com

Methode Electronics, Inc.
ME Server Enclosures

Methode's CTI branded enclosures are designed to accommodate servers and the challenging conditions associated with them, from high density population to extensive cable management, power and cooling requirements. With 100% usable RU space, the ME Server Enclosure can act as a server or network enclosure in both high and low density applications.

- Construction
  -14 gauge frame, formed for strength
- Cable Management
  -Increased rear vertical capacity (over 9")
- Power Handling
  -Up to 2 vertical troughs & 1 PDU or 1 vertical trough & 2 PDUs per rear corner
- Contour Mesh Doors
  -Standard front and rear
  -Increased area of mesh & total airflow

(888) 446-9175 | www.methode.com/data

JETNAS
NAS, iSCSI, FC Storage Appliances

JETNAS provides a full range of NAS, iSCSI, FC storage solutions in different form factors from 1U to 4U rack-mounts and Towers to meet your business needs and to secure your critical data. Our JETNAS appliances combine high density storage capacity and advanced redundancy, scalability, availability, and management functionality.

- Hardware RAID with SAS2, SATA3 Enterprise drives
- Scalable up to 720TB with additional JBOD units
- 4 X 10 Gigabit Ethernet, Network bonding supported
- VMware, Xen, Microsoft Hyper-V compatible
- No additional cost for clients and capacity expansion

JETNAS
AFFORDABLE DATA STORAGE SOLUTION

(888) 227-2926 | www.JETNAS.com

Pegasus Computer Marketing, Inc.
Point of Sale - Wireless - Barcode - Time Clocks

Since the creation of Pegasus Computer in 1987, one thing has never changed - CUSTOMER 1ST!

From all Point of Sale Hardware, Wireless Mobile, Battery Backup and infrastructure hardware, Flat Panel Repair, any and all Barcode from complete units to individual parts from keypads, to lcds and digitizers, to Kronos Time Clocks, Pegasus Computer is dedicated to the complete satisfaction of our customers for all of their Hardware needs!

- FLAT RATE REPAIR
- DEPOT MAINTENANCE
- NO FIX / NO FEE
- SALES/SERVICE/TRADE
- SYMBOL/PSC/INTERMEC
- TELXON/HHP
- IBM/KRONOS

(800) 856-2111 | www.pegasuscomputer.net

Uptime Racks ECC13
Air Conditioned Computer Cabinet

Uptime Racks' air conditioned cabinet delivers the highest cooling capacity in the industry, while using no additional floor space. The 13,000 Btu/hr cabinet provides secure and reliable cooling to mission critical IT equipment. Uptime Racks are the ideal cooling solution for small IT closets or large data centers, providing efficient primary, supplemental, or back-up cooling.

- High Cooling Capacity:13,000 Btu/hr @ 115V
- Cabinet cooling powered by MovinCool
- 32U of available rack space
- Environmental monitoring
- Cold Aisle/Hot Asile configuration
- Plug-and-Play installation

(877) 908-8043 | www.uptimeracks.com

Chenbro RM417

Chenbro's RM417 is a 4U modular storage server with support for up to 36 3.5-inch how-swap drive bays.

- Supports motherboards up to 12 x 13 inches
- Modular design on 2.5-, 3.5-inch HDD cages and M/B tray
- Front and rear side HDD cage installation
- Versatile front device configuration via four types of modular cages
- 6Gb/s Mini-SAS backplane with Expander and SES2 support
- Built-in 6x 80mm HotSwap PWM fans
- Optional rear 2x40mm exhausted fans
- Sturdy chassis structure through side-folded
- Support 2U single or 2+1 redundant PSU

(909) 947-3200 | www.chenbro.com

TOLIS Group
bruAPP™

TOLIS Group's bruAPP backup appliance resolves the issues of configuration, installation, and compatibility faced when implementing a networked system backup strategy.

Proven reliability, cost-effectiveness, scalability, and client system software agents available for all modern operating systems are delivered without the requirement for heavily experienced system/network administrative personnel. Tightly integrated hardware components and the venerable BRU Server™ software provide backup and restore services independent of any server on the network, including virtualized environments. 1U to 12U models (3U/4U chassis stackable to support growth) are available to provide D2T, D2D, and D2D2T services; up to 132TB of net RAID-6 stage capacity in a 4U chassis, and LTO tape technology options are available: up to 4-drive/96 slot libraries.

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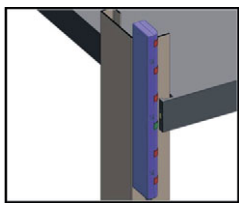

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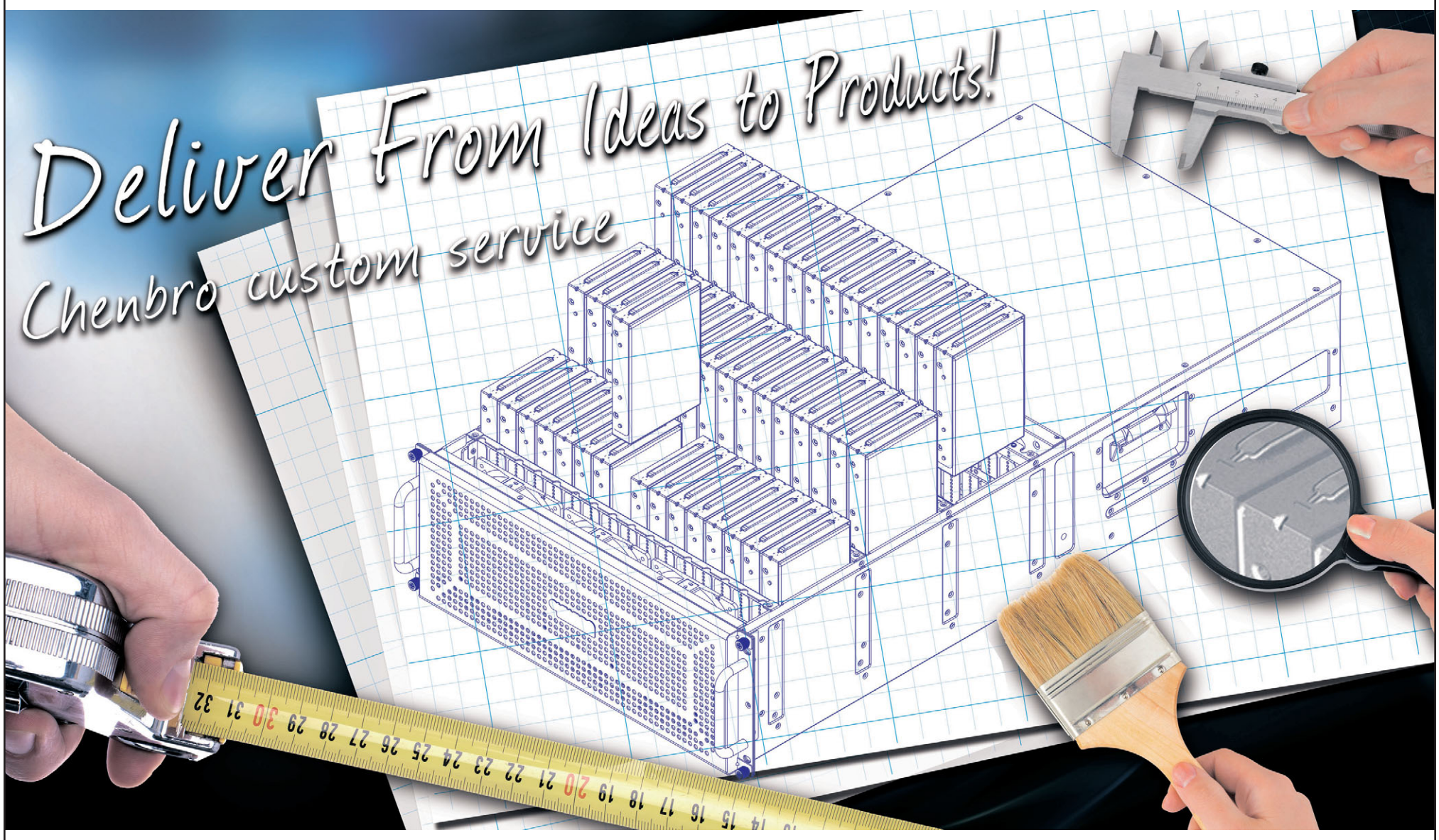

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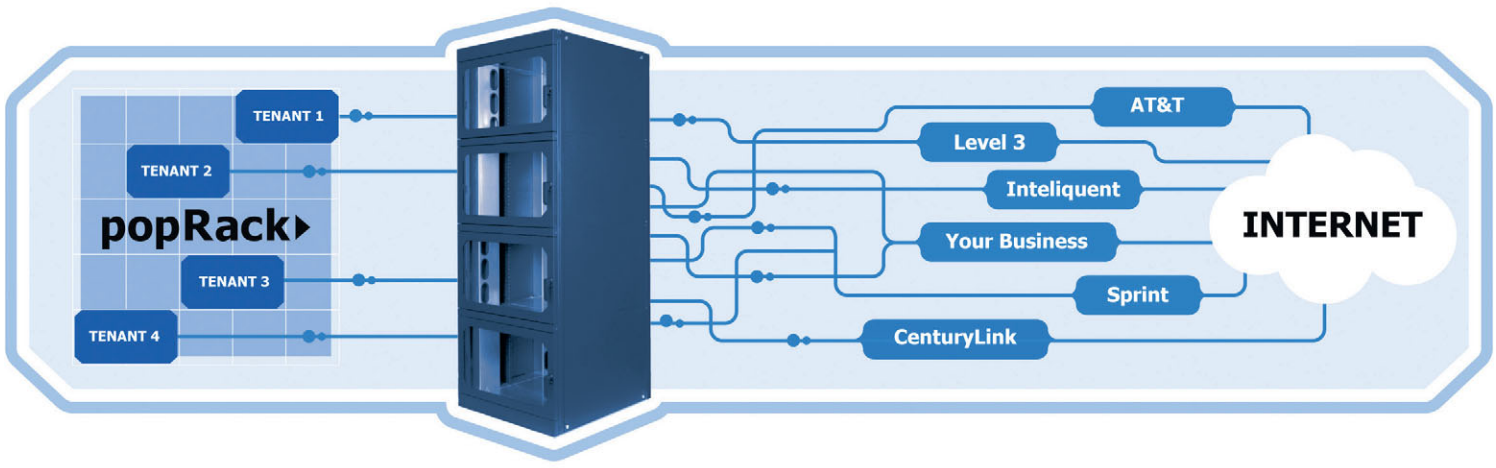

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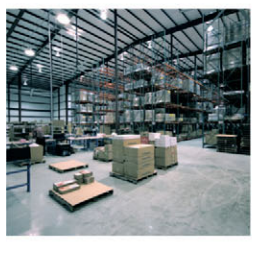

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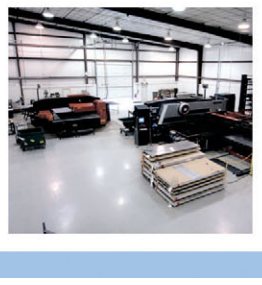

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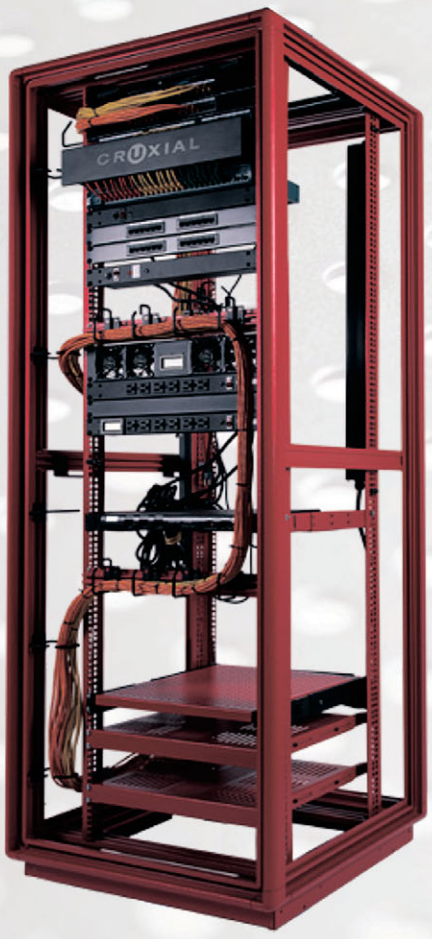

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"Its performance and reliability are impressive and the peace of mind it delivers is priceless.

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For computer servers to operate properly, they've got to be kept cool. Which was Eric Rieger's intention when he purchased three retail A/C units from a local "big box" store. Rieger, President of WEBIT Services, a managed technology services provider in the Chicago area, thought he had found an ideal solution. But all three subsequently failed. The last one on Christmas Day. After quickly contacting his local distributor, Rieger chose a MovinCool Office Pro 12. "Its performance and reliability are impressive," he reports. "And the peace of mind it delivers is priceless."

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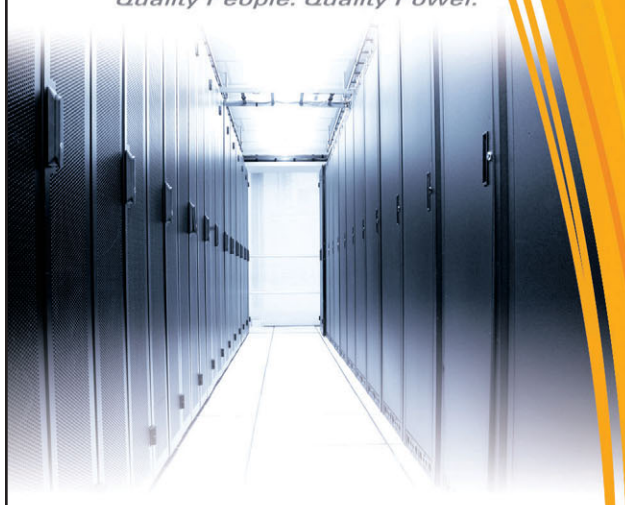

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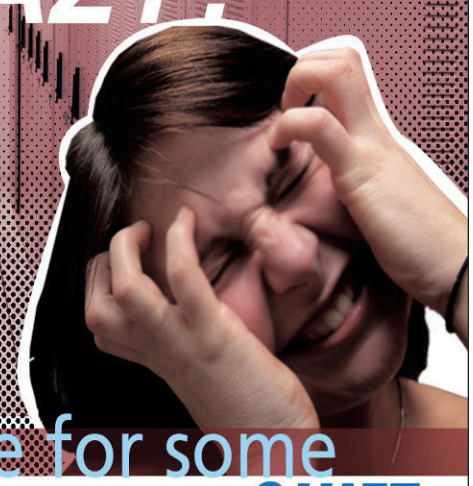

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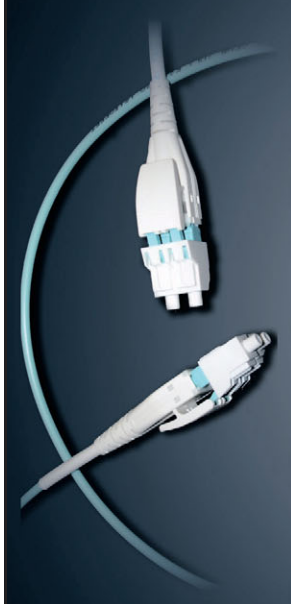

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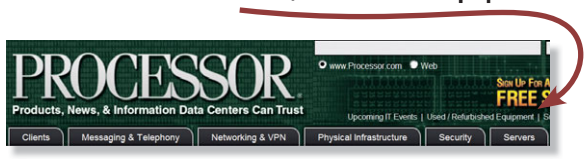

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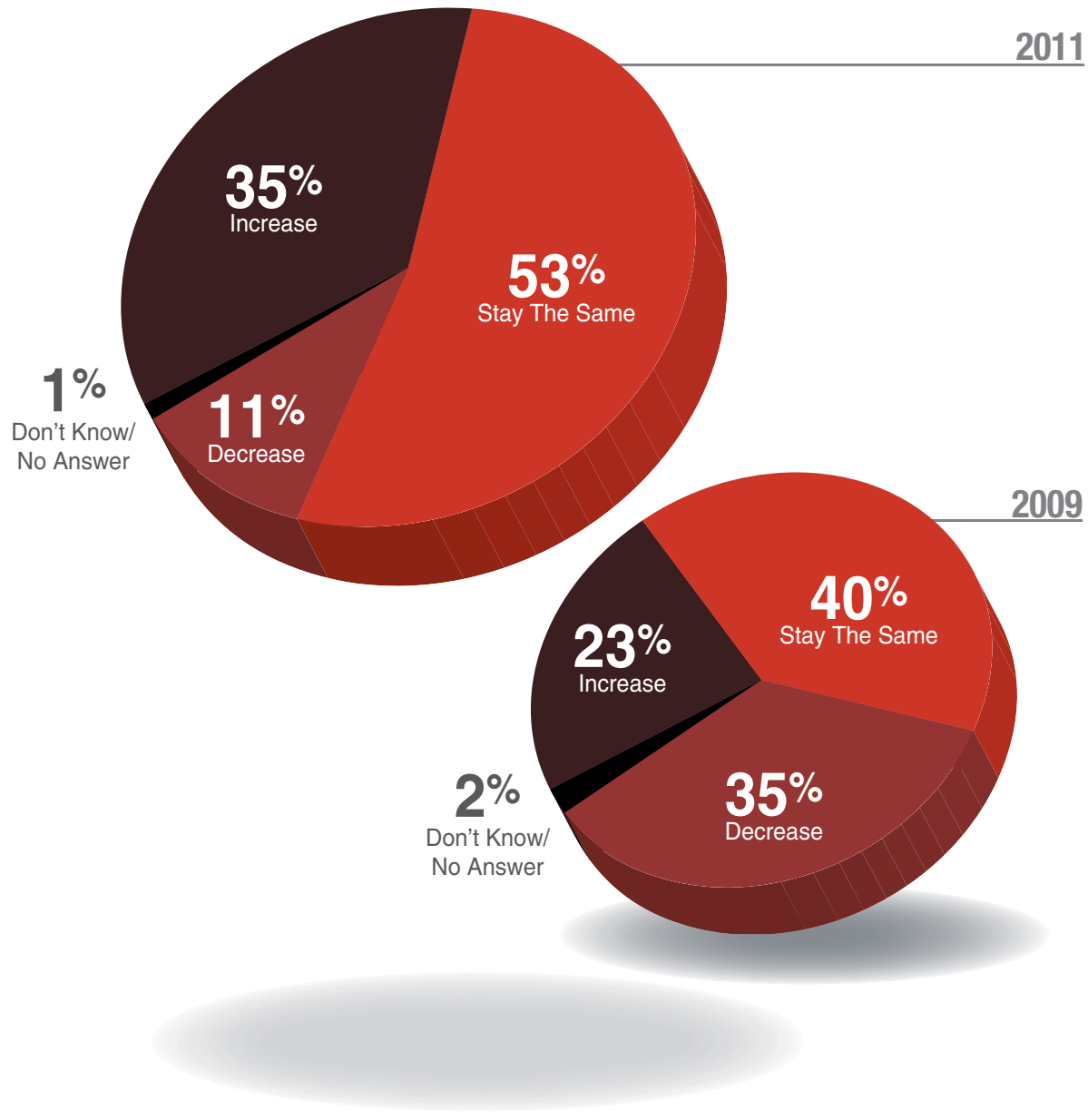
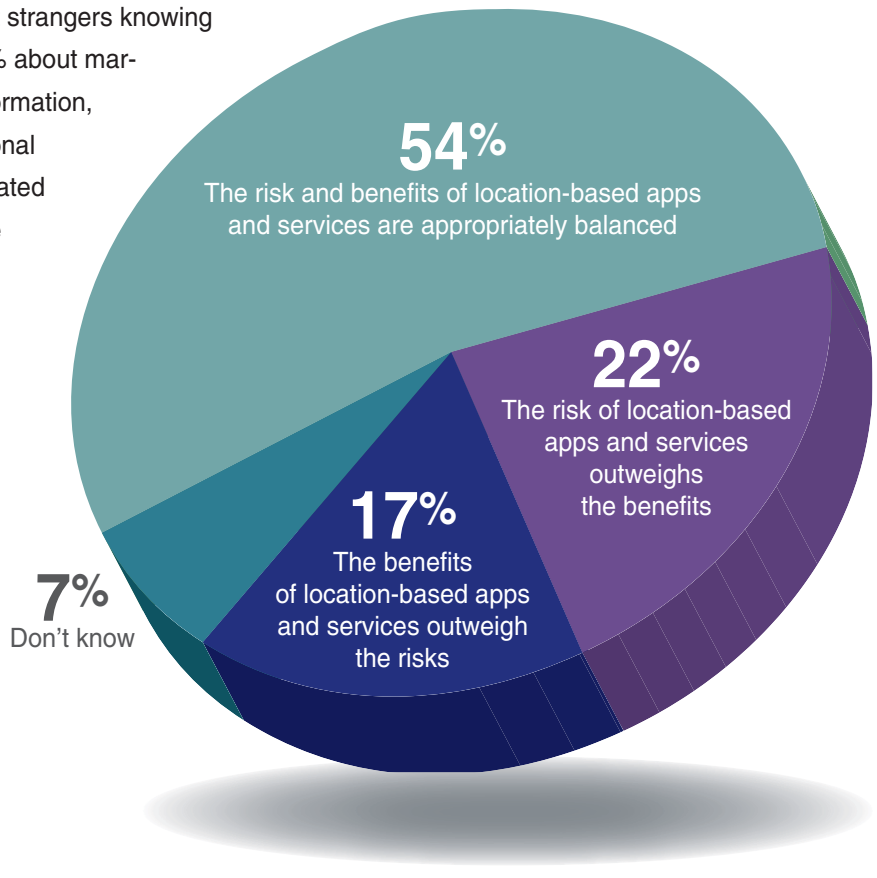
Upswing Continues For Business Travel Plans

The “AirPlus International Travel Management Study 2012” report, based on a survey of 1,701 travel managers worldwide, reveals that business travel planning has shown no signs of slowing down following a dip in 2009. These two charts illustrate how respondents envisioned business trip plans in 2009 compared to 2011. Respondents were asked, “How will the number of business trips develop in the future?”



Users On Apps & Location-Based Information

Most users may not be familiar with the term LBS (location-based services), but many are familiar with how it is used in mobile apps. In short, LBS lets an app use your geographic location (based on GPS and/or cell towers) to enable the service to provide information specific to your locale (say, details about nearby businesses). According to recent research from ISACA, at least 58% of users in the U.S. have used location-based apps. Although users reported concerns (24% about strangers knowing of their activities, 24% about marketers using their information, and 21% about personal safety), most appreciated the benefits, as these statistics show.



Executives Believe In The Power Of Big Data

Of the 600-plus C-level executives, senior managers, and IT leaders surveyed around the globe for a new Capgemini report on the relevance of big data, 54% say that intuition- and experience-based management decisions are “increasingly regarded as suspect,” and 65% say their decisions are, to a greater extent than in the past, based on “hard analytic information.” Those surveyed say the use of big data has improved business performance 26% and expect that percentage to grow to 41% in the coming three years.

IT Spending Expected To Pass $3.6 Trillion

Research company Gartner has adjusted its global IT spending forecast for 2012 to $3.6 billion, a slight increase over last quarter’s projection. Gartner expects continued increased growth in most areas for 2013, as well. Gartner’s latest report pays particular attention to cloud spending. “Business process as a service [BPaaS] still accounts for the vast majority of cloud spending by enterprises,” said Richard Gordon, research vice president, in a press release, “but other areas such as platform as a service [PaaS], software as a service [SaaS], and infrastructure as a service [IaaS] are growing faster.”

WiLAN Buys Siemens AG Patents & Applications

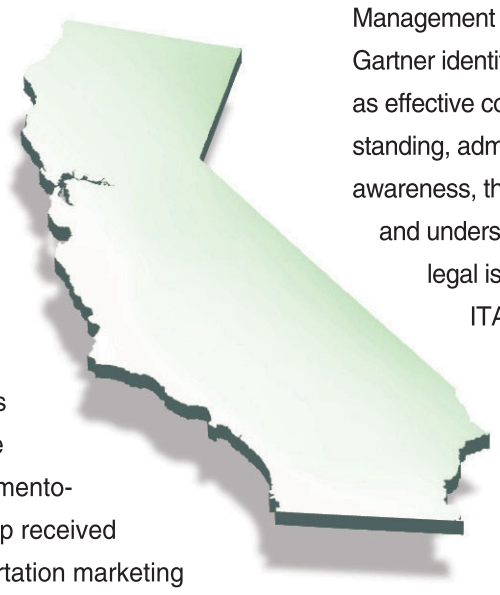
Intellectual property licensing company WiLAN announced it has purchased from German engineering company Siemens AG a “portfolio of more than 40 patents and applications . . . related to telecommunication network management and mobile multimedia.” Founded in 1992 and based in Ottawa, WiLAN said this was the first transaction of its kind with Siemens and did not disclose further details. WiLAN licenses patents to some of the world’s leading technology companies, including Cisco, Nokia, Samsung, and Sony.

Carrier Ethernet Market Growing With Help From Enterprise

Carrier Ethernet, which is the provisioning by telecommunications service providers of Ethernet as a service, is a $4.1 billion market in the U.S., according to the Insight Research Corp. A new Insight Research report identifies interest in carrier Ethernet services among enterprise businesses of all sizes and claims that carrier Ethernet “have been among the communications market’s fastest growing segments,” showing around 22% annual growth. According to the report, carrier Ethernet revenues will approach $5 billion this year and pass $11 billion by 2017.

California Energy Commission Funds Green Fuel Projects

The California Energy Commission recently handed out $23 million in grants for a variety of green fuel projects throughout the state. One such project is a University of California Davis research project that will evaluate the pros and cons of California-based alternative fuels. The U.S. Forest Service received additional funding for its Pacific Southwest Research Station, which focuses on forest biomass biofuel production and the effects of wildfires. Sacramento-based company Tmdgroup received funds for a green transportation marketing campaign. All of these projects are designed to further grow the green initiatives in the state through new technological discoveries and outreach programs.



Report Claims 75% Of Population Has Mobile Availability

That mobile phones have taken hold throughout the world is nothing new, but it might surprise you to learn the extent to which access to mobile phones and mobile communications has spread among both the developed and developing world. According to a new report from the World Bank and infoDev, the total number of mobile subscriptions worldwide had not even reached 1 billion in 2000 but has now passed the 6 billion mark. The report makes a distinction between the number of subscriptions and the number of people using subscriptions, also identifying an upward trend in individual users having multiple subscriptions.

Forget Swiping, Gesture Recognition Coming To Smartphones

You can tap, type, swipe, and sometimes even speak to give commands to your smartphone. Now you can add gesturing to the list. Gesture recognition technology, which uses a device's camera to visually track specific gestures, decipher them, and translate them into actions a device can perform, has already begun appearing in some electronics. Gesture recognition is set to take off in a big way in smartphones, however, if the latest forecast from ABI Research holds true. According to ABI Research's latest analysis, 600 million smartphones with gesture recognition technology will ship in 2017. Inclusion in tablets, media players, and gaming devices is also expected.

Gartner Identifies Top Six Skills For IT Asset Management

Organizations seeking to find the best candidates for ITAM (IT asset management) roles may want to look to Gartner, which is exploring the topic at its IT Financial, Procurement & Asset Management Summit in September and October. Gartner identified the top skills for ITAM leaders as effective communication skills, technical understanding, administrative capabilities, financial awareness, the ability to negotiate with suppliers, and understanding of compliance and other legal issues. "To meet future challenges, ITAM requires solid skills and experience in these key disciplines, and will need to strengthen its relationship with specialist teams," said Victoria Barber, research director, in a press release.

Cisco Buys Virtualization Company Virtuata

San Jose, Calif.,-based networking technology company Cisco has acquired Milpitas, Calif.,-based Virtuata, which specializes in virtual machine security for data centers and cloud computing environments. "Together, Cisco and Virtuata will enable consistent and enhanced security for virtual machines allowing customers to accelerate the deployment of multi-tenant, multi-hypervisor cloud infrastructures," wrote Cisco's Hilton Romanski, business development manager, in a Cisco blog post about the acquisition. Terms of the transaction were not disclosed.

Small Cell Market Growing for Backhaul Prevision, Network Management & More

Recent forecasts from ABI Research indicate more than 1 million "outdoor femtocells, picocells, microcells, and carrier Wi-Fi access points" will be sold this year, and that the entire outdoor small cells market will be worth $14.3 billion by 2017. Femtocells will be the biggest seller, says ABI, with 81.5% CAGR resulting in $5.4 billion in revenues by 2017. ABI cites challenges in areas such as "backhaul provision, interference mitigation, network management, policy integration, and roaming" as important drivers in the expanding outdoor small cells market.

Worldwide PC Shipments Fall Below Expectations

News from the International Data Corp.'s latest "Worldwide Quarterly PC Tracker" report indicates that global PC shipments aren't exhibiting the expected growth. Year-on-year growth has been "slightly below" the 2.1% that IDC forecast in May. Some regions, including Japan, maintained positive growth, while the U.S. decreased 10.6% compared to a -4.4% forecast. "The announcement of a Windows 8 launch date, as well as broader communication of new features in the OS, are key steps that would help to address uncertainty about new product availability and help consumers and channels plan their purchases," said Jay Chou, IDC senior research analyst, in a statement.

Mozilla Foundation Working On Mobile OS

The Mozilla Foundation is reportedly developing its own mobile operating system for entry-level smartphones. The so-called Firefox OS will most likely appear on low-end smartphones with a goal of delivering more efficient access to websites and Web-based applications via HTML5 and other Web technologies. Firefox OS would not, therefore, compete directly with higher-end smartphones that run Android, BlackBerry OS, iOS, or Windows Phone 7. Reports indicate that Firefox OS would launch first in Brazil in 2013, with no word as to further development or subsequent releases.

Most U.S. Mobile Subscribers Choosing Smartphones

When choosing between feature phones and smartphones, consumers in the U.S. are now more likely to purchase a smartphone, according to a recent Nielsen report. Smartphone penetration reached 54.9% in Q2 of this year, according to Nielsen, with about two-thirds of buyers choosing smartphones during Q2. In terms of smartphone OS market share, Android leads (with 51.8%), followed by iOS (34.3%), BlackBerry (8.1%), and other OSes (5.9%). Among manufacturers, Apple leads with 34% market share, followed by Samsung (17%), HTC (14%), and others.

Samsung Acquires Mobile Portion Of Semiconductor Design Company

Samsung recently announced it has acquired the mobile technology business of UK-based semiconductor design company Cambridge Silicon Radio for $310 million. That includes CSR's location-based and wireless technologies plus related patents. Based in Seoul, Samsung is a leading manufacturer of smartphones and tablets. "By leveraging CSR's research and development capability, Samsung will strengthen its application processor platform," said Stephen Woo, Samsung president of System LSI Business, in a statement.

SIX QUICK TIPS

Improve Energy Efficiency

Tips To Make Legacy Data Centers More Energy-Friendly

Life would be grand if every company could afford state-of-the-art data center space stocked with energy-efficient equipment. Countless companies, however, must get by with legacy cooling and power equipment situated in space that's far from optimal energy-wise.

Jim Hall, marketing manager at Staco Energy (866/261-1191; www.stacoenergy.com), says a surprisingly large number of small business network closets are literally closets in which IT equipment resides with cleaning supplies, toilet paper, pens, paper clips, and stored holiday decorations. Even in such circumstances there are means of improving energy efficiency in legacy data centers, as the following tips detail.

✔ Consult What's Available

Scores of resources are available from which to acquire suggestions for improving legacy data center energy efficiency, including The Green Grid's (www.thegreengrid.org) "Datacenter Maturity Model." John Stanley, analyst for data center technologies and eco-efficient IT at 451 Research, says The Uptime Institute offers papers (uptimeinstitute.com/publications) and efficiency case studies from the Green Enterprise IT Awards program (symposium.uptimeinstitute.com/geit-awards), which can also be helpful.

Anu Elizabeth Cherian, Frost & Sullivan senior industry analyst, suggests approaching OEMs for advice, especially UPS and HVAC manufacturers; while Konkana Khaund, Frost & Sullivan building technologies industry manager, points to the Department of Energy's Federal Energy Management Program (www1.eere.energy.gov). "They publish a number of best practice guides on building and maintaining energy-efficient data centers," she says, including guides focused on design elements that require conceptual planning and layout considerations to plan for efficiencies from the beginning. The DOE also provides guides for existing data centers, she says, as does Lawrence Berkeley Labs and ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers).

✔ Pull The Plug

Companies can save considerable resources by addressing any number of server-related issues. For example, Robert Faulkner, sales engineer at Server Technology (www.servertech.com), says, "Turn off what is no longer used. Many legacy data centers have servers running with obsolete applications." Comatose servers are those plugged in and turned on but not doing useful business and needlessly consuming power, cooling, and space resources, Stanley says. Staco Energy's Hall says replacing legacy servers with Energy Star-rated gear is an option.

Virtualization is a frequently recommended solution to achieve better energy efficiency. "The biggest concern with older equipment is the performance per watt is low," Faulkner says. Thus, it's critical to know the actual work the server is doing and power being dissipated, he says. "Virtualization has been a great way to optimize that performance per watt by packing the workload of several servers into one high-efficiency server; however, this typically means purchasing new equipment," Faulkner says. "The next question becomes, 'What is the ROI?' Quite often, the power cost savings of the virtualization switchover will pay for itself in a matter of months." When moving to virtualization, Stanley cautions to not impact application availability or SLAs.

✔ Retrofit & Monitor

Often, the best or only solution to enhance energy efficiency of legacy equipment is replacing it to acquire the latest features and functionalities, Cherian says. In other cases, retrofitting equipment with monitoring and measurement systems may be possible. Faulkner says monitoring and measuring every practical point for power and temperature "allows for understanding the effects of change in the data center and provides means to prove what changes are worth the cost."

Khaund says retrofitting mechanical systems, such as CRAC unit supply fan motors and chillers, that operate on constant volume to variable frequency drives is an option. "Systems integration and bringing all mechanical systems under the purview of the building automation system for complete visibility and synchronized control and management is very important," she says. "Disparate mechanical systems lend to major operational and energy inefficiencies that can be avoided with proper integration of systems, controls, and devices." Doing so also helps conduct predictive energy management and fault detection and diagnostics, she says, thus making sure other data center energy hogs, such as lighting, perform optimally and don't add to inefficiencies.

✔ Cooling & Airflow

According to IT solutions provider Logicalis (www.logicalis.com), cooling is responsible for as much as 40% of power costs in a typical midsized data center. Improving airflow is one of the easiest ways to improve a company's power usage bottom line. Among the company's airflow-enhancing tips are blocking all unused rack space and areas between racks and outer cabinet shells. Also, check that raised floors are clear to enable maximum airflow, use adjusting cabinets or enclosures for legacy equipment that's not front-to-back cooled in order to route side-to-side airflow in such a pattern, and use containment to keep return air separate from ambient room temperatures.

"Hot air mixing with cold air is a terrible drain on efficiency," Faulkner says. "Make sure to keep them separate." One problem with implementing hot aisle/cold aisle containment, he says, is older buildings often have low ceilings, old power and cooling infrastructure, and lower weight limitations that can keep necessary ducting from fitting. Khaund, meanwhile, says that the success of a hot aisle/cold aisle implementation in a legacy data center varies case by case; factors such as the number of perforated tiles channeling cold air from the under floor plenum into the cold aisle must be considered when attempting to optimize performance.

Stanley says hot aisle/cold aisle arrangements "are usually good practice regardless of the age of the site," but in existing sites "it's difficult or impossible to shut things down and rearrange the racks." Still, implementing an arrangement without a rack reconfiguration is potentially possible. "It doesn't have to be pretty," he says, but "cooling equipment and set points should be monitored and, if necessary, adjusted after the change." Overall, he says, optimize airflow so cold air is directed at equipment that needs it "rather than leaking out through gaps in the raised floor or mixing with hot air." Maintenance-wise, check for clogged filters, slipping belts, stuck valves, and other issues, that reduce the unit's efficiency. Most efficiency improvements, he says, come from the cooling side because "you have degradation of heat-removal ability over time with buildup and general fouling of heat transfer surfaces. Really, it comes down to adherence to maintenance plans." P

✔ Raise The Temp

"The data center doesn't need to be a meat locker," says John Stanley, 451 Research analyst. "Make sure the temperature set points on computer room air conditioning units are reasonable," he says. Frost & Sullivan's Konkana Khaund suggests referring to ASHRAE TC (technical committee) 9.9's "Thermal Guidelines for Data Processing Environments–Expanded Data Center Classes and Usage Guidance," which includes insights into optimal thermal range conditions at server inlets and configuration recommendations for existing legacy systems. Raising the temperature, says Robert Faulkner, sales engineer at Server Technology (www.servertech.com, can produce the quickest results for improving energy efficiency.

✔ Use White For More Light

Logicalis states that using white cabinets, walls, floors, and ceilings in the data center—something doable during renovation projects—helps reflect heat and direct hot air to returns more easily. In addition, IT admins will find it easier to see inside cabinets and elsewhere, meaning less additional lighting required.

BONUS TIPS:

✔ Make It Count

John Stanley, 451 Research analyst, says to make certain adjacent cooling units aren't fighting each other so that "one unit is not humidifying while the other is dehumidifying," which can happen due to problems with the units' humidity sensors or settings.

✔ Professionals Can Help

Robert Faulkner, sales engineer at Server Technology (www.servertech.com), says that while each company must determine what it considers a "cost-effective" measure, seeking professional help is one possibility. "A professional audit of the data center is a good first start, as this will allow for ranking of possible improvements relative to implementation costs and ROI," he says.

HOW TO

Add New Space As Needed

The Modular Approach To Building A Data Center

For some enterprises, the question isn't one of needing more data center space; it's a question of how to do it efficiently and affordably. For an increasing number of companies, the answer is using a modular data center solution, something that enables you to quickly obtain space and has the ability to expand as future needs dictate. Compared to building a new data center or retrofitting existing space, a modular solution can provide numerous benefits related to costs, speed, efficiency, and more.

The Benefits

Modular data centers are available in various solutions, including preconfigured shipping containers that the vendor may completely or partially build at its facility. Typically, these prefabricated structures are outfitted to meet IT-intensive needs, including those related to connectivity, power, and cooling.

Steve Borley, vice president of sales and marketing at Data Specialties Inc. (www.WeBuildDataCenters.com), says current offerings are energy-efficient infrastructure solutions that are easily and quickly deployable and can save enterprises hard and soft costs over time while still providing the redundancy and reliability of traditional data centers. "Most units range in sizes equivalent to shipping containers and therefore can be easily placed and scaled to accommodate space and load demands," he says.

Loyd Guillot, director of the modular data centers business at TAS Energy (www.tas.com), says modular data centers help companies to expand as their demand grows, thus freeing up long-term capital. Further, the approach provides companies with the ability to change their growth direction. Chris Crosby, CEO of Compass Datacenters (www.compassdatacenters.com), says allowing businesses to add capacity as they grow, rather than all at once, is the one element various modular data center solutions share. "For example, a customer that expects to grow to 3mW [megawatts] of capacity but only needs 1mW immediately can obtain the initial space required now and the additional 2mW at a future time," Crosby says.

The Disadvantages

Guillot says that, because the modular data center is a relatively new concept, the industry hasn't yet widely accepted it. "Instead of the traditional field-constructed approach, the modular data center solution requires change to internal practices that can be a challenge to implement," he says. Crosby says the most common consideration for enterprises eyeing modular solutions is they're typically located within a single facility shared with other customers. "Although the customer has its own dedicated, four-walled 'suite,' they share all common areas—the loading dock, for example—with the other tenants of the facility," he says. "This can lead to scheduling and security issues."

Another factor companies must consider is the finite space within the building itself. "In some instances, customers must pre-lease the space they will need for expansion to ensure that it's available when it is needed. This means the customer is paying for capacity that they aren't using," he says. "'Phased approaches' are dangerous if some components are shared. In these instances, future phases cannot be commissioned and tested due to 'live' data centers in place from earlier phases. This lack of testability is like flying in an untested airplane."

Good Candidates

Cost-wise, both Guillot and Crosby say operating a modular data center is on par with more traditional solutions. "It is the option value that creates the cost savings," Crosby says. Until recently, he says, options for adding data center space included colocation, building a data center, or using a data center provider's build-to-suit facility. "Colocation facilities offer very limited control, and building your own data center or having a provider build one for you is extremely costly from a time, manpower, and dollars perspective," Crosby says. "Modular solutions are the cost-effective alternative from these options."

To determine if a modular data center makes sense, companies can evaluate past growth patterns and the expected future growth pattern to determine if building in multiple, manageable phases makes short- and long-term economic sense, Guillot says. Overall, Borley says modular data centers are a good fit for companies with critical timing needs, limited space, and/or those needing their data center in a remote location. "A modular data center solution also works well for military, government, oil rig, university, or medical facility clients," he says. P

Key Points

- Modular data centers are available in various types, including preconfigured shipping containers outfitted to meet IT requirements.
- Typically, modular data center operating costs are similar to traditional data centers but can save companies on capital expenditures.
- Modular data center solutions enable companies to expand data center space as requirements necessitate.

Action Plan

- Identify internal customer requirements and specifications and outline immediate and long-term goals and requirements. Then use these as a template to evaluate providers.
- Obtain all hard and soft costs.
- Conduct research into providers.
- Communicate your requirements and needs to providers.
- Visit existing sites that will mirror your own and ask questions of the end user.
- Check provider references.
- Pinpoint vendors that can meet your cost target.

Get Started

The most important step for any company contemplating obtaining its own data center is establishing goals that it wants the data center to address immediately and over an agreed upon timeframe, says Chris Crosby, CEO of Compass Datacenters (www.compassdatacenters.com). These goals must include such considerations as the degree of risk the organization is willing to carry and the monetary parameters it is willing to assume to mitigate this risk.

"All this information must be translated into size requirements expressed as kW of IT load," he says. "All these things should be clearly understood and agreed upon before any overtures are made to potential providers." Once all requirements are clearly established, they'll serve as a template for evaluating potential providers, he says. From there, focus on how well each provider can address your needs, check their references, and determine which ones can meet your cost target.

Top Tips

✔ **Evaluate vendor options.** Loyd Guillot, director of the modular data centers business at TAS Energy (www.tas.com), says companies interested in acquiring a modular data center should begin by evaluating vendor options that fit the company's internal customer needs. "Subsequent steps could entail developing plans to match sales growth and specific evaluations around price, performance, and quality," he says.

✔ **Avoid obstacles.** Chris Crosby, CEO of Compass Datacenters (www.compassdatacenters.com), says while it's difficult to predict obstacles companies could encounter, issues commonly arise around a site's power and physical capacity as related to the business' ability to grow its data center operations over time. Another common occurrence with container-based installations involves the cost of the initial building required to house container units. "This requirement is very often overlooked and adds substantially to the cost of the overall project," he says.

✔ **Plan for extras.** Steve Borley, vice president of sales and marketing at Data Specialties Inc. (www.WeBuildDataCenters.com), says some modular units can require additional utility power, backup generation, and cooling system support infrastructure if the units aren't self-sufficient. Additionally, certain units can only be placed outside of building structures or in structures suitably ducted to provide ambient air supply and exhaust. Site preparations and communication fiber requirements are other possible considerations.

✔ **Environmental considerations.** Borley says the environmental impact of modular data centers are mostly similar to traditional data center, though certain manufacturers "offer infrastructure that can save as much as 40% in required cooling conditions, saving on not only costs but natural resources and energy, as well."

HOW TO

Maximize The Life Of Existing Data Center Equipment

Steps You Can Take To Get More Bang For Your Buck

Lengthening the life of aging data center equipment is not only possible, it is a necessity for many businesses that are looking to squeeze more ROI out of their existing equipment, including storage, cooling, and servers. By making a concerted, faithful effort to maximize the lifespan of data center equipment, nearly any enterprise can save money, time, and manpower by stretching out the periods of time they traditionally follow for making hardware upgrades and replacements.

The fact is that just because equipment is older doesn't mean it can't serve a meaningful purpose. Google, for example, makes a point of detailing that over recent years it has avoided buying more than 90,000 new replacement servers by redirecting outdated servers at tasks requiring less processing power, thus enabling a more efficient and environmentally friendly operation. In an age when enterprises are increasingly turning to cloud providers, it's becoming less necessary to maintain loads of processing power and other resources. Overall, enterprises have much to gain by maximizing the life of their existing data center equipment. Here's how.

Maintain Proper Maintenance

Some enterprises shoot themselves in the foot by simply neglecting to engage in continual, routine maintenance duties. Speaking specifically about cooling equipment, Jim Fink, CTO of Upsite Technologies (888/982-7800; www.upsite.com), says properly maintained HVAC equipment can last 20 years or more. "A single new CRAC unit can cost $50k installed, and the installation can be invasive and disruptive to an operational data center," he says. "Maintenance can defer this expense and avoid the operational impact."

Beyond following a manufacturer's recommended maintenance schedule, Fink says to select equipment upfront that will work well with your site's unique conditions. "For example, there are at least four different types of humidifiers available for data centers, each has different advantages. Some types are tolerant of bad water quality, some are not. If you run the wrong humidifier with poor water quality, you may end up replacing it every few years. Alternatively, a water purification system could be installed at the site if its expense justifies the maintenance avoided."

Ryan Brown, vice president of sales and marketing at xByte Technologies (www.xbyte.com), says doing something as straightforward as cleaning dust can be a major factor in decreasing heat and ultimately preventing equipment failure. "Clean your systems regularly," he says. "There is minimal downtime in doing this maintenance, and it can have a huge impact. A dirty server will generate more heat, and therefore costs more to cool and will have parts fail at a faster rate." Additionally, he says, applying BIOS and firmware updates, which may come out 12 to 24 months after the original release, can speed performance and reduce stress on equipment.

Think Before Buying

Certain types of equipment inherently lend themselves to being easier to maintain. For example, Fink says, "Chilled water equipment is generally more maintenance friendly than DX equipment when operational concerns are considered. The chilled water plant is located outside the data center so that both corrective and preventative maintenance can be conducted without a lot of the data center risk that work in the data center creates. Air handlers are likely to still be located in the data center, but they are less complicated and therefore less maintenance intensive than their DX alternatives."

Investing in equipment that can be used in association with an automated environmental monitoring system can pay off long-term due to lengthening the lifespan of servers and other hardware that heat might otherwise adversely affect. Investing in virtualization technologies that can enable consolidating inefficient servers into fewer physical machines is another example where enterprises can save power and cooling resources while opening up floor space.

Generally speaking, Darin Stahl, an analyst at Info-Tech Research Group, says the economic downturn and virtualization have altered how enterprises view equipment. Refresh cycles have expanded, he says, and enterprises are trying to wring every ounce of usefulness out of equipment. Whereas five years is the most common refresh point for servers, Stahl says, more companies are pushing this to six-plus years and fewer are refreshing at three years.

Recognize The Time To Move On

Ultimately, the time will come when old equipment must be replaced. One way of recognizing this, Fink says, is reviewing the cash outflow stream trend and projecting into the future. "Compare the present value of the cash flow with the capital cost of new equipment, factoring in any efficiency increases that may result from the new technology," he says.

Brown says saving on costs is a primary benefit of extending equipment life, as "it's always more advantageous to upgrade before buying new." If buying new equipment is a must, however, he says to always factor in "soft costs" to the process of implementing a new system. Such costs include expenses related to new operating systems, technician/implementation costs, and any possible downtime, he says.

"If money is the deciding factor, then wait until upgrading old equipment won't support the business," he says. "If performance is the deciding factor, then wait three months after the manufacturer stops supporting the equipment. This will yield a high return for the old equipment while avoiding the high price of new bleeding-edge technology."

Leverage The Old For The New

Just giving away old equipment is one mistake some enterprises make when they think they have no other option, Brown says. "Most often, older equipment has some kind of value. Try to work a trade with the vendor who is selling you the new equipment. If the trade doesn't work, then at least find a recycler who will give you money for the weight of the metal," he says.

If attempting to sell old equipment yourself, Browns says to understand the marketplace and know when to sell the equipment to maximize return. "Historically, old servers have actually gone up in value in the three to six months after the manufacturer ends support," he says. "When selling equipment, work with vendors who inventory and sell the servers you want to sell. They will have an active end-user base and will generally give a better price." P

Key Points

- Cleaning dust can help reduce the risk of heat negatively affecting equipment, including servers.
- Routinely performing maintenance chores, including following the manufacturer's recommendations, can prolong the life of equipment.
- Investing in virtualization technologies covering servers and storage can help consolidate resources and maximize current investments.

Top Tips

- ✔ **Train employees to spot trouble.** Jim Fink, CTO of Upsite Technologies (888/982-7800; www.upsite.com), advises enterprises to train equipment operators to detect problems before a crisis occurs. For example, a failing motor or bearing often changes its sound or operating temperature before it fails. "Review runtime hours between past failures and preemptively respond. Get parts ordered. Schedule the maintenance before the 2 a.m. failure," he says.
- ✔ **Testing.** Among the possibilities for reusing older equipment is using it in testing environments, for backup purposes, and as transitional equipment during data center moves.
- ✔ **Instant deployment.** By keeping extra equipment on hand that IT can instantly deploy, an enterprise can save the time and money it would otherwise need to buy or rent equipment for non-mission-critical environments.

Get Started

A simple but effective starting point to lengthening the life of data center equipment is creating and enacting maintenance, inspection, and cleaning plans and schedules that also include installing available upgrades and updates, such as server BIOS or firmware updates. Investing in consolidation, load-balancing equipment, and automated monitoring systems that help alert IT to heat-related issues can reduce equipment-related costs in the long term.

Action Plan

- Invest in equipment that naturally lends itself to being easy to maintain
- Follow the manufacturer's maintenance schedule
- Engage in routine cleaning
- Consistently perform BIOS and firmware updates
- Create a failure-prediction program
- Establish financial trip wires that help indicate when new CAPEX is justified
- Monitor the marketplace to detect when upgrade prices fall

SIX QUICK TIPS

Improve Data Center & Enterprise Security

A Few Small Tweaks Can Make A Big Difference

Every company understands how important security is to the overall viability of the enterprise, but it's also important to not see a single security measure as the answer to all of your problems. "The most important thing is realizing that security is not a product, but a process," says Pierluigi Stella, CTO at Network Box USA (www.networkboxusa.com). "I see companies spending hundreds of thousands of dollars on security solutions that no one uses."

To protect your security investments while also protecting your company, it's important to look at every possible improvement you can make to your existing security approach.

✔ Start By Securing The Most Crucial Data

When trying to decide where to start with your overall security approach, you have to go further than simply analyzing your data from an internal perspective. In fact, if you can look at your assets from the outside looking in, you'll get a better idea of what needs the most protection.

"Companies should first look at their most valuable assets, not from a business point of view but from a cybercriminal's point of view," says Mike Donnell, director of eSoft (www.esoft.com). "These are the areas that are most likely to be targeted in an attack and should have the tightest security."

Donnell points to customer databases filled with payment information and servers with intellectual property and other confidential data as the most valuable assets, but they're only solid starting points. The key is to look at every device with network access as "an entry point for hacking attempts," Donnell says. And regardless of where you begin, eventually every device will need to be secured in some capacity.

✔ Focus On Mobile Security

Most companies put a strong focus on securing their servers, networks, and other internal physical infrastructure. But it's also crucial to make mobile security a high priority, because smartphones and tablets are becoming some of the most popular targets for hackers. A solid mobile security policy starts with telling employees how important it is not to store sensitive data on the device itself, and it ends with giving employees the access they need without compromising the company network.

"Mobile devices should only be allowed access to the corporate network behind the gateway, firewall, or unified threat management (UTM) system to ensure that they are not used as a way to get around the policies established for basic protection," Donnell says. "As long as the corporate gateway has inbound and outbound scanning, it will be able to protect the entire network from any device, including mobile phones, tablets, and laptops, if they get infected while out of the office."

✔ Prevent Intrusions

Mike Donnell, director of eSoft (www.esoft.com), says that companies should limit public access to servers and machines as a major deterrent to potential intrusions. If you can minimize the amount of data being sent into and out of your network, there are fewer opportunities for outsiders to intercept sensitive information.

"Connections to critical servers and machines on the local network should take place over an encrypted VPN rather than opening holes in the firewall," Donnell says. "Any servers that do require public access, like a Web server, should be monitored and protected against hacking attempts and intrusions."

✔ Develop A Security Awareness Program

One of the simplest ways to improve your enterprise security without spending a dime is to institute a security awareness program. Think of it as an educational resource that provides your workforce with a series of best security practices that they can follow both in and out of the office.

"Teach your employees how attacks work and how browsing the Internet in the wrong places can compromise your entire company, or how shredding or not shredding can make a difference," says Pierluigi Stella, CTO at Network Box USA (www.networkboxusa.com). "These are things that can be done without spending any money at all and can go a very long way in improving the security posture of a small company."

BONUS TIPS:

✔ Know Your Network Well

To protect your company and its network, you have to know the network inside and out, says James McMurry, president and CEO of Milton Security Group (www.miltonsecurity.com). You have to map it, document it, and look for weak points or other areas that need improvement. You should also figure out the baseline of your environment, which helps you know what normal looks like and makes it easier to see anomalies.

✔ Use Network Access Control

McMurry also recommends that companies use adaptive network access control solutions that help companies manage who has access to a network and where they can access it from. Such a product can also show you where outside connections are coming from and help you allow or deny every potential connection. You can then log everything that happens on your network and develop the best possible security approach.

✔ Keep Up With Security Updates

Installing a single application or suite of security products will only go so far in protecting your company if you don't keep them up to date with the newest feature enhancements and upgrades. "Updates and upgrades are some of the most important security steps a company can take," says James McMurry, president and CEO of Milton Security Group (www.miltonsecurity.com). "They are released to fix bugs, vulnerabilities, and mistakes in the original application, thereby hardening the application against threats."

In some cases, the bugs and vulnerabilities in a piece of security software could be an easily discovered loophole for attackers, so it's important to take advantage of free updates whenever possible. On the other hand, software upgrades are not always free and can sometimes force the company to incur a hefty upfront fee for the newest version of a program. In this case, McMurry recommends that companies evaluate these upgrades on a "case by case basis to decide if the upgrade is more secure, includes more features, and will benefit the company." With these questions answered, you can secure your company's data while still being financially responsible.

✔ Try Not To Limit Your Security Budget

In the current economic climate, most companies are looking for places to cut costs, but Stella says security shouldn't be one of those places. "Limited budget is the story we hear all the time, but security should never have a very limited budget," says Stella. Instead, Stella points out that companies should put a budget in place that will adequately "do what needs to be done," to protect the company from every perceivable threat.

Stella also says that companies that incurred the wrath of large-scale attacks in the past can be cautionary tales against cutting your security budget. "A company that does not dedicate enough budget to security should reconsider how long it wants to remain in business, because in 2004, an FBI study revealed that 90% of the companies whose data had been stolen had gone out of business within one year," he says. Try to make as much room as you can in your budget for security, because if you want your business to stay in operation, you can't afford to limit it, he says. P

HOW TO

Save Money On Data Center Cooling

Cut Costs Without Sacrificing Performance

All data centers are looking to cut costs in some capacity, whether it is through consolidation and colocation or other potentially money-saving measures. But if you aren't looking at the cooling efficiency of your data center, then you might not be looking in all the right places.

"Effective cooling is preventative maintenance," says Mike Paulson, president of AmeriCool (800/680-0725; www.americoolinc.com). "By cooling your room properly, it allows the data center to function at peak levels, resulting in longer lasting equipment."

Making changes to your data center cooling approach can do much more than extend the life of your equipment. It can also help you lower power consumption and hopefully decrease your overall operational costs. We'll walk you through a few steps you can take to improve your data center cooling efficiency and cut down on costs at the same time.

Measure Cooling Expenses & Efficiency

Before you start making changes to your existing cooling equipment or purchase new equipment, you should first measure how much power is being used to cool your data center and whether this is efficient enough to adequately cool the room. You should get a baseline measurement of the temperature inside of the data center and then move on to the equipment housed inside racks and cabinets. There are many ways to do this, but Jim Magallanes, engineering director at Computer Room Uptime (877/908-8043; www.cruptime.com), recommends installing an energy monitor to determine the exact amount of energy the data center is using.

You should also put a solution in place that will measure temperature fluctuations so you can pinpoint the hot spots in your data center and address them quickly. "The most fundamental data point to monitor is seasonal variations in average IT inlet temperature," says Jim Fink, CTO at Upsite (888/982-7800; www.upsite.com). "If a group of racks runs hotter in the summer, figure out which CRAC units are primarily serving them and monitor them. Good points to monitor include electrical current and voltage and inlet water temperature on chilled water and condenser water systems."

Raise Your Data Center Temperature

If you find that your cooling efficiency isn't where you want it to be, then you may need to raise the operating temperature of certain pieces of equipment. "Most data centers are too cold," says Rich Fichera, vice president and principal analyst at Forrester Research. "Modern servers will take air up to almost 85 degrees as an inlet temperature, so there's no reason to run the data center down in the 60s, which is way too cold." He says by raising the air temperature by a few degrees, you can cut down on the power consumption of your cooling equipment and save money on your data center's energy bill.

Fink adds that companies can also "widen the humidity band" in the data center so that it tracks "outdoor humidity more closely to avoid some of the energy consumption associated with dehumidification and humidification." Because many pieces of equipment are running much more efficiently than their predecessors, you should always be aware of changing regulations or recommendations, many of which are provided by ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers).

Increase Cooling With Equipment Tweaks Or Upgrades

If making changes to operating temperatures and improving the overall efficiency of your equipment isn't making enough of a difference, then it may be time to make changes to your cooling solutions.

For instance, Laura Viars, senior sourcing specialist at Rackmount Solutions (866/207-6631; www.rackmountsolutions.net), says that some companies simply don't have good enough airflow in their data centers. "Making sure that air is circulating through your cabinets and the room properly will reduce your costs," she says. "A great deal of money is thrown away on cold air that just doesn't reach the equipment." If you can add filler panels and other add-ons to your cabinets and racks, then you can direct cool air to where it's needed most. This is a relatively inexpensive solution to cooling issues, and it could result in long-term savings for your company as a whole.

In some situations, equipment tweaks and adjustments simply aren't enough and you may need to invest in brand new solutions in order to get a better level of performance and more savings in the future. "Replacing older electronics with newer models can be helpful in reducing costs over the long term," Viars says. "In an effort to create more energy-efficient servers, most major brands are manufacturing their products to meet Energy Star guidelines and specifications. Other brands, while not Energy Star rated, are redesigning their parts to consume less power. These electronics tend to require less cooling than their predecessors, so upgrading your equipment will lower your cooling and energy costs all around."

Consider Free Regional Alternatives

Most companies are searching for free fixes to their cooling problems, and while they are few and far between, there are a few newer cooling approaches that can be used to improve cooling. "A long-term solution would look into economization/free cooling for the data center, whether it be indirect evaporative cooling for the southwest United States or water economization for location with cold winters," Magallanes says. If you can take advantage of natural cooling techniques available in your specific geographical region, you turn off your air conditioners and utilize free cooling, he says. P

Key Points

- Determine the operating temperature of the equipment in your data center room and whether your cooling solutions are maintaining optimal efficiency.
- Tweak your existing equipment and cooling solutions to get the best possible performance, but know when it's time for an upgrade.
- Look into regional solutions, such as open air or natural water-based cooling, for an easy way to improve efficiency without bringing in additional equipment.

Top Tips

The following tips were provided by Jim Magallanes, engineering director at Computer Room Uptime (877/908-8043; www.cruptime.com):

- ✔ Install physical barriers, such as blanking panels and vinyl curtains, to create a cold aisle/hot aisle in the data center.
- ✔ Consolidate mission-critical equipment in a single air-conditioned computer cabinet for redundancy. This way you won't need to run multiple CRAC systems that tend to fight each other.
- ✔ Lower the energy usage of your CRAC system to increase the amount of IT equipment in the data center. Typically, data centers run out of available power before they run out of white space. By lowering cooling bills and energy use, companies can delay a retrofit or new build of their data center.

Action Plan

Mike Paulson, president of AmeriCool (800/680-0725; www.americoolinc.com), recommends working with "your preferred mechanical contractor" to go over the following pieces of information:

- Identify the total heat load in the room and how much cooling the room requires.
- Confirm the total capacity of your air conditioning equipment at the highest heat load.
- If you don't have enough capacity to counteract the amount of heat, evaluate what your additional needs are and compare purchasing a portable solution to a permanent ceiling or rooftop air conditioning unit.
- Once you have your cooling solution installed, make sure you have a reliable backup plan in place, whether it's a redundant cooling system or additional portable air conditioning units.

Get Started

Efficiency should be the first thing you focus on when looking to cut down on data center cooling costs. Make sure your current cooling solutions are adequately lowering operating temperatures, but not to the point of being wasteful. Improving cooling efficiency is a great way to maintain short-term and long-term performance. "If you are ensuring that your equipment is cooled sufficiently, the likelihood of any component overheating will be greatly reduced, which is a surefire way to reduce the cost of IT equipment as well as power consumption," says Laura Viars, senior sourcing specialist at Rackmount Solutions (866/207-6631; www.rackmountsolutions.net).

SIX QUICK TIPS

Secure Social Media

Tips To Spot The Security Risks & Address Them

Social media use is a must for businesses for marketing, customer service, and other legitimate purposes. A downside, however, are the security issues social media poses to businesses via social engineering and malware. Use the following tips to address those risks.

✔ Understand What's At Stake

Through social media interactions, employees can unwittingly reveal company information that the competition can use or that puts the company in a bad light, says Dan Olds, a consultant at Gabriel Consulting Group. Employees can also provide hackers with enough insider-type information, he says, to run a scam on the company or "talk their way past safeguards."

Traditionally, IT has grown used to controlling a company's message and information flow, says Ben Dickie, research analyst at Info-Tech Research Group. Today, IT can steer a company's social media conversations in a positive direction, but consumers can still say negative things that IT can do little about. This shouldn't scare companies into inaction on developing a social media strategy, he says.

Another concern is employees posting personal thoughts or opinions others can construe as the company's official stance, he says, which can create a PR nightmare if segmentation between personal and professional accounts on social channels isn't in place. An SMMP (Social Media Management Platform) can help mitigate such risk. "Using an SMMP means your employees will never accidentally post a personal tweet to the company page," he says.

✔ Remember The Benefits

Although social media can cause IT headaches, the benefits are real. As Andrew Walls, Gartner research vice president, security, risk, and privacy, says, IT's job is "to support the attainment of business objectives." Security managers should base social media control decisions on how the business chooses to reach customers, recruit/retain employees, and market the company to partners and the public, he says.

Too often, security treats social media as a block-it-or-allow-all-of-it decision, Walls says, which isn't "based on the sophistication of the security tools available to manage risk associated with social media." Instead, IT should understand how the business wants to use social media and how IT can use social media to improve security performance. "Without this understanding, security and IT decisions will impede business progress, and users and managers increasingly will ignore the IT department and work around the barriers erected by IT," he says.

For most organizations, Dickie says, social media benefits far outweigh the risks. Since 2010, the number of Info-Tech clients outright blocking social media services has steadily declined, he says, as more senior managers understand the value. A desirable approach is allowing access to at least some employees who need social media access to do their jobs. Examples include knowledge and process workers, marketing managers, customer service reps, and salespeople. "Social media services should only be blocked in those instances where there's no legitimate business-related use case," Dickie says.

✔ Understand The Threats

Pierluigi Stella, CTO of Network Box USA (www.networkboxusa.com), says Trojans and social engineering are the two primary social networking threats. The latter typically involves someone the employee doesn't really know but is on a friend's friends list, "so you blindly accept their request." Soon after, that person gains access to the employee's private data, using it to steal his bank identity, commit fraud by opening an account in his name, or perform some other act. "Does this threaten the business? Maybe not directly, but if the data stolen is the password to your database, then it does," he says.

Trojans, meanwhile, are "an obvious curse," Stella says. Many games and apps, for example, are nothing but a means to attack computers, he says. The social network may try to clean things up, he says, but "the sheer size of the environment makes it hard to be prompt all the time, so these threats continue to thrive, and computers continue to become infected." If this happens to a business workstation, he says, "you have a problem."

Gartner's Walls advises enlisting three security measures:

Monitor, analyze, and report. "To substantiate or prove risk, you need to monitor and analyze actual behavior and content."

Get involved. "You cannot manage social if you aren't skilled with social network platform use."

Guide behavior. Participating in social networks enables security managers to "inject messages and comments that can guide user behavior into more productive (from a security perspective) routes."

Blocking at the perimeter isn't a solution, he says, as users will still access social networks via personal devices. "People want to use social networks. If you get in their way, you encourage them to ignore IT guidance," he says. "The goal should be to enable access in a controlled fashion."

✔ Enlist Education

Olds says the vast majority of employees wouldn't intentionally put the company at risk but don't realize the risks and steps required to prevent security problems. IT should educate employees about social networking best practices and act as a resource on potential security risks. He suggests implementing an acceptable use policy that details dos and don'ts concerning company equipment or company references, something that can help IT review overall security mechanisms and ensure it has proper protections around sensitive applications and data.

Traditionally, Walls says, security managers have regarded users "as the thing that must be controlled." Mobile, social, and cloud computing, however, have put users in the driver's seat. Thus, security and IT must learn to motivate users to make good security decisions. He says the continued failure of awareness programs to generate desired behaviors has caused many security managers to disparage user management as a robust control for security risk, which is a mistake. "Users ultimately control the quality of security performance, and security managers must embrace more effective approaches to behavior motivation to maintain optimal levels of user behavior," he says.

✔ Beware Visibility

Andrew Walls, Gartner research vice president, security, risk, and privacy, says lack of visibility is a primary social network security issue created by mobile devices. Most security infrastructure focuses on network traffic transiting the corporate network, but mobile devices use external networks to reach various hosts, he says, with only a small portion of that traffic transiting the corporate network. Other issues include physical context (mobile devices are used everywhere, but users generally don't limit use based on assessing the local physical environment for security risks) and physical control (it's easier to steal an iPhone than a network server from a data center).

✔ Consider Blocking Apps

Pierluigi Stella, CTO of Network Box USA (www.networkboxusa.com) advises blocking apps. "You can't really control what happens once you start using them," and despite many being legitimate, "they usually all require full access to your account, and that is not a good idea," he says.

BONUS TIPS:

✔ Treat All Communication Equal

Gartner research vice president Andrew Walls doesn't believe specific social network security policy is required. "The corporation should have a single Communications Security Policy that applies the same set of guidelines to all communications, regardless of the technology involved," he says. Maintaining separate policies creates confusion and increases the probability of non-compliant behavior, he says. One set of guidelines readable in less than five minutes that are applied universally has the best chance of influencing behavior, he says.

✔ Avoid Employees Bypassing Blocks

Network Box USA's CTO Pierluigi Stella says an inline proxy offers the best, if not only, way to avoid employees bypassing social network access blocks. "If the proxy server is inside the LAN and the only way to access it is by configuring a proxy in your browser, any lightly skilled employee will be able to bypass it and go straight out unprotected," he says. "Best solution is a proxy inline. If all traffic going out must go through the proxy because this is also the default route out to the Internet, then there is no way to bypass it; a decent firewall will be able to intercept HTTP traffic and force it through the proxy, and bypassing it is no longer possible," he says.

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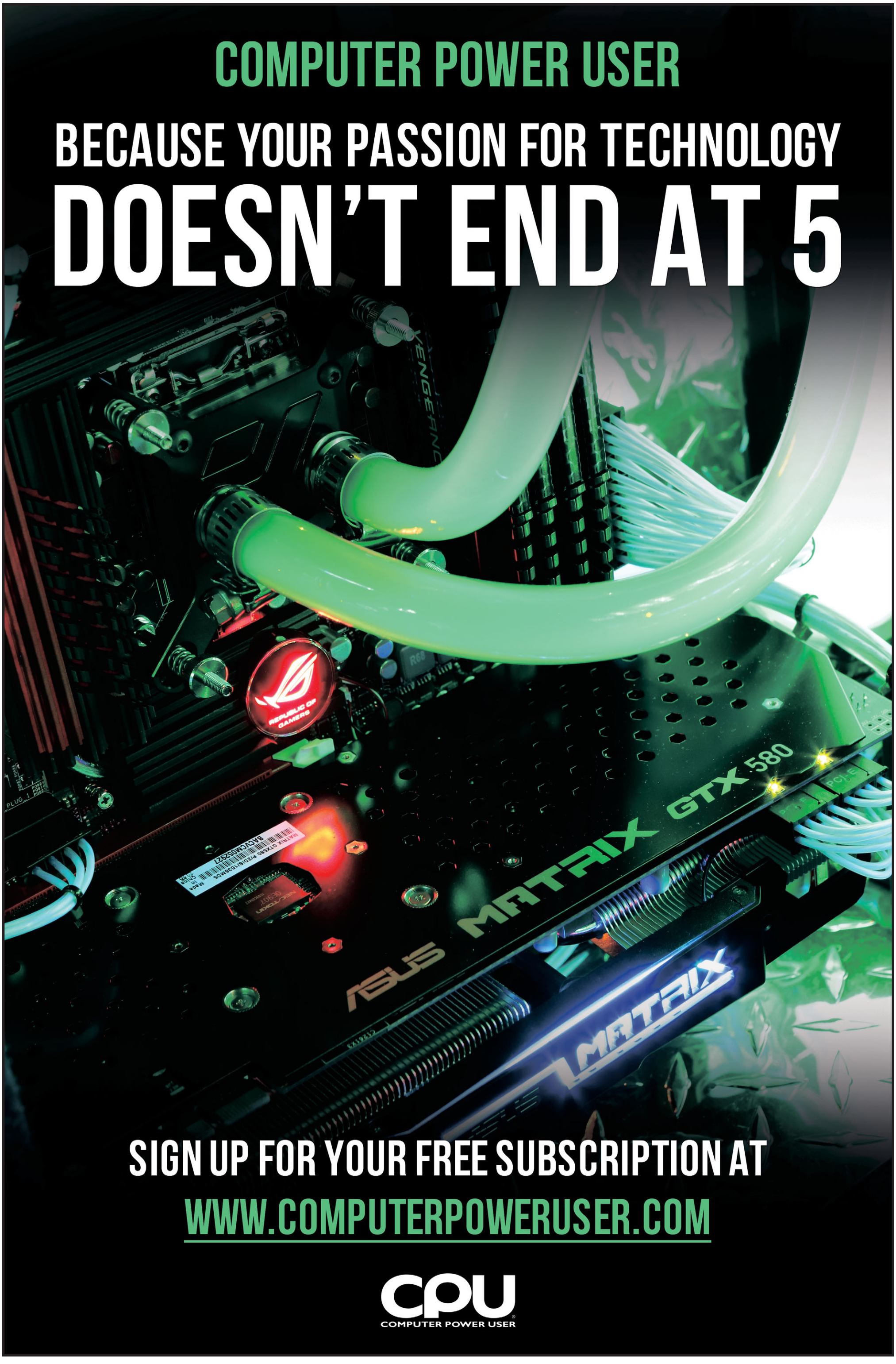

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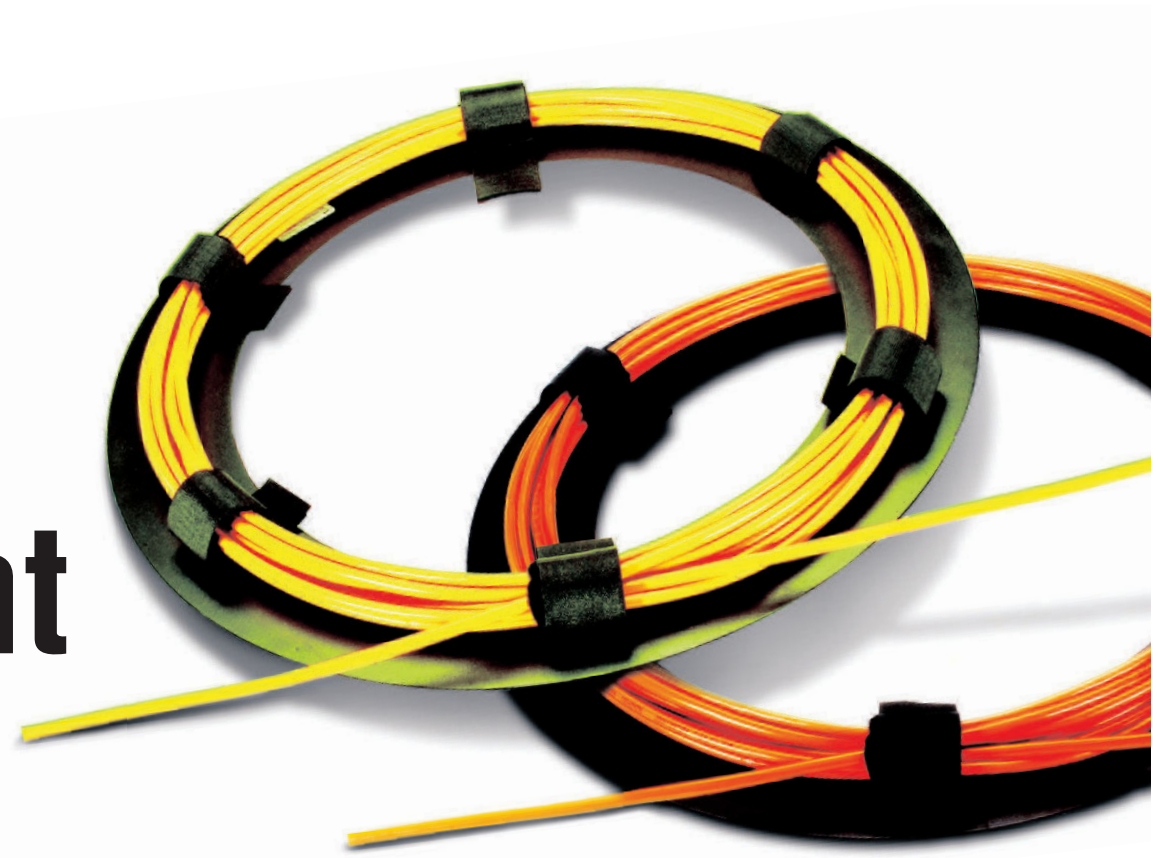


MANAGING CABLES is an afterthought. That's an unfortunate reality among many data centers, says Ken Koty, sales engineer at PDU Cables (866/631-4238; www.pducables.com). Among other things, not having a cable-management plan and guidelines makes troubleshooting problematic. But numerous solutions are available.

✔ Decide If You Want An Overhead Or Underfloor System

Andrew Schmeltzer, technical cabling specialist at Black Box Network Services (www.blackbox.com), says you'll need to decide whether you'll use an overhead or underfloor system. Budget is one factor. Overhead systems, he says, are less expensive. Also, while plenum cables may be required in an underfloor system, they aren't in an overhead system where cabling is installed below the ceiling grade, resulting in cost savings.

Other factors include room and cabinet sizes (follow TIA-942 mandates and compensate for different cabinet sizes), separation of power and telecommunication cables (determine where electrical cables are run and plan data cabling runs accordingly), and distance between cables.

✔ Plan For Expansion

Laura Viars, senior sourcing specialist at Rackmount Solutions (866/207-6631; www.rackmountsolutions.net), says if you intend to incorporate more equipment in the future, ensure your cable management configuration allows for it. Do this by making certain managers (both in-rack cable managers and external trays and ladders or conduits) don't meet or exceed their fill capacities. Most management options are available in multiple sizes, she says, ensuring a fit with plenty of excess if needed.

Also seek solutions with the flexibility to add new equipment or troubleshoot an existing component. "Lean toward reusable options such as Velcro straps in lieu of cable ties and managers that allow easy access to their contents," she says. Have an idea of when you're looking to expand and by how much. If you expect rapid and near-term growth, keep cables loosely organized during implementation by cutting down on the bundling and by using managers (D-rings vs. managers with covers) offering easier access.

✔ Check Vendor Experience, Warranties & Other Factors

Vendors should have experience that matches your business size and type, warranty products and work, offer easy ordering, provide complete solutions and knowledge concerning network configurations, carry parts that fit into your existing systems, and guarantee installation and network performance. Because cable management systems affect a wide range of data center infrastructure subsystems, including airflow management and mechanical and electrical distribution, Lars Strong, senior engineer at Upsite Technologies (888/982-7800; www.upsite.com), says a vendor needs to have comprehensive knowledge of data center operations.

✔ Consider Color & Labeling

Koty says when possible, use color coding to help visually identify cables quickly, simplify management, and save time when tracing cables. With data cables, use color to identify the cable's role/function or connection type. With power cables, use color to identify and organize dual-power feeds for redundant power sources.

Secure labels so they're accessible but difficult to remove. Also, maintain a spreadsheet that identifies the cables and colors, where cables come from and go, and configurations. P

BUYERS' CHECKLIST

✔ **Installation concerns.** Be aware of vertical cable management types you have or need in cabinets and racks, says Andrew Schmeltzer, technical cabling specialist at Black Box Network Services (www.blackbox.com). Also consider the patch panels you have and if they include horizontal cable managers.

✔ **The basics.** Laura Viars, senior sourcing specialist at Rackmount Solutions (866/207-6631; www.rackmountsolutions.net), says no matter the size of installation planned, you'll likely need basic management items such as vertical managers to bundle cable along the height of the racks/cabinets; horizontal managers to bring the cabling neatly from the drop to the equipment; and Velcro straps to bundle cables as needed.

✔ **Testing.** Pre-test all cable before installing, says Ken Koty, sales engineer at PDU Cables (866/631-4238; www.pducables.com). Once installed, it's more difficult to test and identify problems.

KEY TERMS

Cable bend radius.
The minimum radius a cable can acceptably bend and still function as intended.

TIA/EIA.
The TIA (Telecommunications Industry Association) and EIA (Electronic Industries Alliance) provide best practice guidelines regarding cabling infrastructure.

Buying Tips:

PDUs

When PDUs began appearing in data centers and networking rooms a couple decades ago, they were little more than pricey power strips. Since then, PDUs have evolved into integral components of a modern power distribution infrastructure, delivering correct voltage and current to multiple outlets. Intelligent PDUs are even capable of measuring current load at the PDU level, sounding user-defined alarms, reporting levels and power cycling remotely, and supporting external temperature and humidity sensors. There's a lot riding on continuous uptime.

✔ Do Your Homework To Ensure The PDU Matches Your Needs

Brett Femrite, director of business development at Rackmount Solutions (866/207-6631; www.rackmountsolutions.net), says you have to do your homework prior to making a PDU purchase. "It is critical that the PDU you select match up with your power consumption needs and server/network equipment," he says.

Femrite recommends making note of the type and quantity of outlets needed and whether you can daisy-chain for added capacity. Although the ability to expand capacity might not be critical now, having the option could save money down the road. Femrite also highlights form factor (vertical/horizontal, rack/wall-mountable, or 0U), the amperage the PDU needs to support, and the type of PDU that best serves the requirements and needs of the data center as other key factors to consider.

✔ Understand The PDU Options

"There are generally three types of PDUs: basic, metered, and switched," Femrite says. "Each type comes with its own set of features."

A basic PDU lacks monitoring and remote administration capabilities but focuses on simple and effective power distribution. The next best option is a metered PDU, which has everything a basic PDU has, but adds a meter that lets users visually track amperage and GUI management software that lets users monitor the aggregate current being drawn on each PDU in real time. Switched PDUs support everything on a metered PDU and add local and remote control capabilities on a per-outlet level. Redundancy is also important, Femrite says. "A dual-circuit PDU provides an added layer of fault tolerance by offering two power inputs," he says.

✔ Account For Anticipated Growth & Increased Needs

One of the biggest mistakes you can make is getting a PDU that isn't as capable as you need it to be now and into the future. "If you don't precisely match up the PDU with your power consumption needs, taking into account anticipated growth/increases, you can wind up having a breaker tripped, which of course can cause a power outage that can be catastrophic," Femrite says.

Other factors that are easy to overlook include finding the right location (which is typically dependent on the form factor), how a switched PDU will be connected to the network, and how far the PDU will be from its power source. "It's much easier to tie up some extra power cord than to move a rack full of equipment," Femrite says. P

Buyers' Checklist

The following tips were provided by Julie Brown, marketing manager at Server Technology (www.servertech.com).

✔ **Do your homework and know the different types of PDUs.** What type of PDU do you need for your data center? Choose from basic, intelligent, metered, or switched PDU options.

✔ **Know your power needs, or consult an expert.** Make sure you're buying the right PDU for the job. You want to make sure that the PDU you buy matches up with your power consumption needs. If you don't know what your needs are, bring in an expert who can help you determine them.

✔ **Look for the best quality.** You want the best quality you can afford for reliability and performance to power your mission-critical equipment.

✔ **Service.** You want a PDU from a company that provides tech support and services after the sale.

Key Terms

PDU.
A power distribution unit is any device that provides electrical power to servers, networking components, storage devices, and other data center equipment.

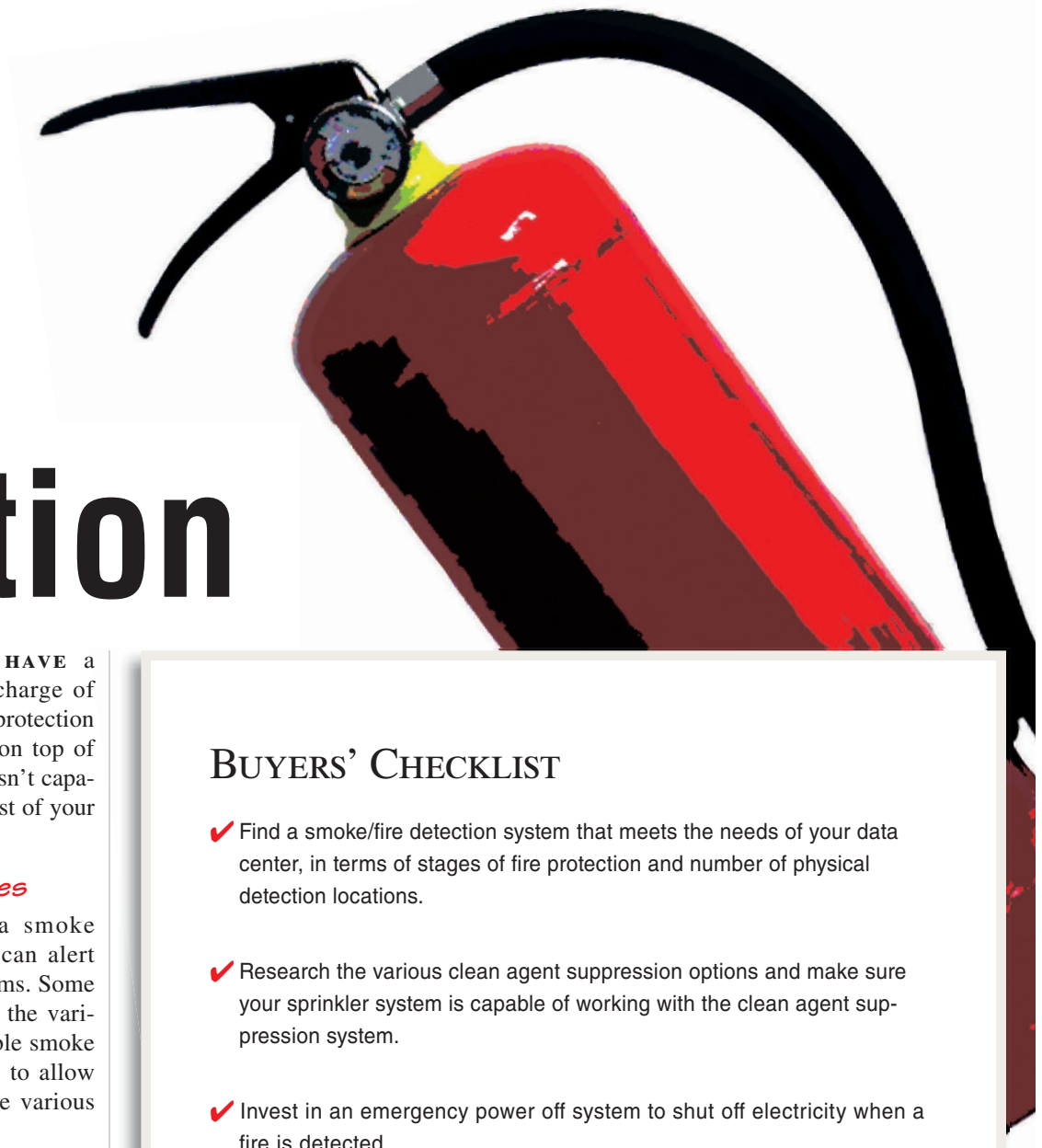
Intelligent PDU.
An intelligent PDU is any PDU that offers Web-based management, meter power at both the PDU and individual outlet level, and real-time power monitoring.

Metered PDU.
These PDUs can track current draw at the PDU level and display the data locally and often remotely, as well.

Switched PDU.
Users of switched PDUs can remotely switch connected devices on and off; some even offer outlet management technology.

Buying Tips:

Fire Protection



You probably already have a lot on your plate if you're in charge of protecting the data center. Fire protection is one issue that probably isn't on top of your list, but if your data center isn't capable of suppressing fires, all the rest of your hard work may be for naught.

✔ Know Your Alert Choices

You'll need to invest in a smoke and fire detection system that can alert employees and IT staff to problems. Some models are capable of detecting the various stages of a fire, such as visible smoke vs. flaming fire vs. intense heat, to allow you to set off alarms or activate various stages of fire protection.

✔ Understand Water & Non-Water Options

Fire protection is generally broken down into water and non-water options. The obvious downside to using a sprinkler system is that electronic devices and water can be a bad combination, especially in situations that are started by electrical fires. Thus, most data centers opt to go with a clean agent or aerosol agent suppression system, which is designed to leave no residue and is safe for both electronics and people, unlike some chemical-based fire protection. "Some clean agent suppressants are complex chemical compounds which act on the fire in various ways, such as reducing the heat, while others are pure inert gases which displace the oxygen to inhibit combustion," says Steve Joseph, director of market development for Xtralis (www.xtralis.com).

Regardless of which type of suppressant you select, you'll need to know at what stage during a fire the detection system should trigger the suppressant to release. According to Joseph, "Unnecessary or poorly timed suppression dumps must be avoided since the cost of such mistakes is enormous, because a volume of clean agent sufficient for even a modestly sized area can cost tens of thousands of dollars to replace." In short, effective detection is key, as the suppression system is only as good as the detection system initiating the release.

✔ Invest In An Emergency Power Off System

Nearly all data centers also install an EPO (emergency power off) system, which will shut off any electricity to the area where the detector senses a fire. Look for models with industrial-grade contactors, heavy-duty relays, and hard-piped wiring to prevent any accidental shut-offs. The EPO will need to be able to automatically work with your fire detection system. P

Buyers' Checklist

- ✔ Find a smoke/fire detection system that meets the needs of your data center, in terms of stages of fire protection and number of physical detection locations.
- ✔ Research the various clean agent suppression options and make sure your sprinkler system is capable of working with the clean agent suppression system.
- ✔ Invest in an emergency power off system to shut off electricity when a fire is detected.

Key Terms

Aerosol agent.
A type of fire suppressant system that leaves little residue and won't damage equipment. Although aerosol agents require a contained space, a sealed air-tight space is not required as the agent does not pressurize the protected area when discharged.

Agent storage container.
The assembly or unit that stores the clean agent fire suppression liquid until it needs to be released when prompted by the suppression control panel.

Class C.
Fire breakouts that involve electrical equipment where a non-conductive extinguishing agent must be used.

Clean agent.
A type of fire suppression system that leaves no traces behind.

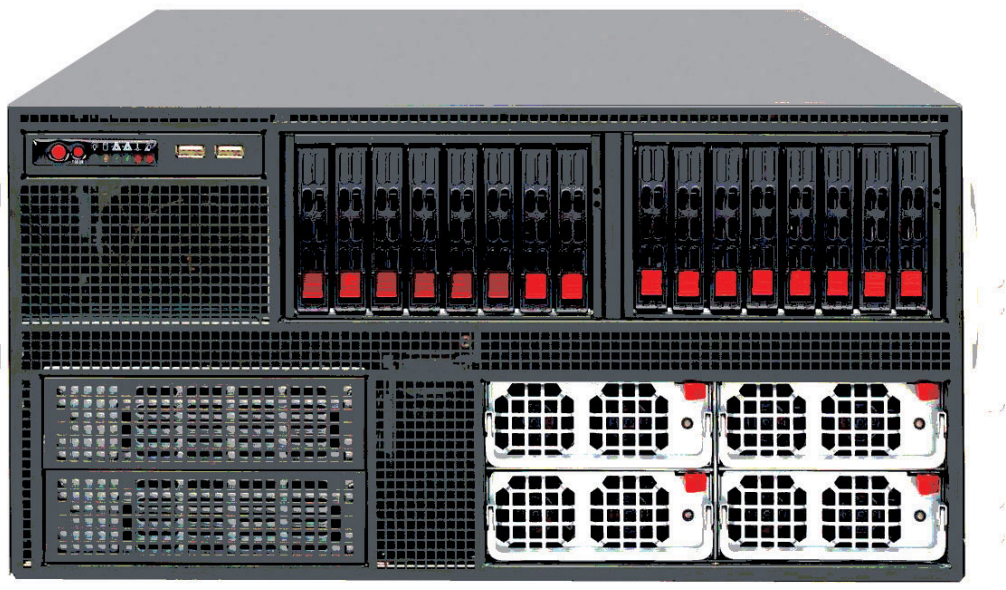
Deluge.
A system where all the sprinklers connected to the water piping system are open. If the deluge valve opens due to a signal, the entire area will be sprayed with water.

Early warning smoke detector.
A passive detector that uses ionization and photoelectric sensors.

Heat detector.
A unit that sends a response when the convection of thermal energy changes the temperature of the device's heat-sensitive element.

Suppression control panel.
The unit that houses the interface you use to control the fire protection system.

Very early warning smoke detector.
A smoke detector that samples air particles via aspiration to find non-visible smoke.



Buying Tips:

Servers

Buying a new server takes significant prep work. Beyond pinpointing the data center's exact needs and how the server will meet them, there are budgetary, future-proofing, compatibility, and vendor considerations to address, as well.

✔ Determine What's Important

Charles King, president and principal analyst at Pund-IT, counts CPUs, memory, and I/O as the most critical server features, though their relative importance depends on the application and workload they'll support. Companies running a business-critical database or online transaction program, for example, should eye a higher-end CPU/system than what's needed for general-purpose applications. For virtualization-related use, spend more for extra memory and I/O.

Max Haskvitz, general manager of eRacks (714/532-5322; www.eracks.com), says stability (quality components, trustworthy CPU and memory combo, etc.), redundancy (RAID and redundant power system availability), and compatibility with your current environment and software are important. Upgradability is also vital, he says: "Why would you spend thousands or even millions on servers that you can't use two years down the line?"

✔ Know The Impact Of Virtualization & Consolidation

John Sloan, lead analyst for virtualization and consolidation at Info-Tech Research Group, says that unlike the distributed processing world in which servers had a one-to-one relationship with applications, consolidation and virtualization are becoming the norm today.

In this space, Sloan says it's important to know how a new server will fit into a consolidated stack that includes servers, networks, and storage. Unlike distributed models, "in a consolidated infrastructure, the server is a unit of hard capacity (processing and memory) that's combined with networks and storage in a resource pool that's partitioned up into virtual entities." Increasingly, he says, enterprises aren't buying servers, but blocks of capacity. What differentiates current offerings "is how the interconnects are managed and how the whole thing is managed as one resource pool," he says. Typically, blade servers are the form factor for consolidated offerings, he says.

✔ Consider Your Budget

"A good vendor should leave you with no questions," Haskvitz says, but because each enterprise is different, this sometimes can be difficult to accomplish. Questions should focus on the support you can expect, whether devices have been tested in environments similar to yours, how the vendor's brand compares to your current brand, whether cost-savings are built in, and how long the vendor anticipates the units will be available.

Budget-wise, some vendors try to make the majority of their money on support or software, he says. An IT department that can find an open-source solution for its appliance or application needs, he says, can probably cut up to 50 to 60% of the cost.

Sloan says, "In any infrastructure purchase, the upfront capital acquisition cost is just part of the deal. Three- to five-year total costs should be calculated, including maintenance and facilities costs."

✔ Watch For Cloud, Other Trends

Haskvitz says most trends for servers currently are cloud-related. Here, multiple-node servers are a great investment, he says. King advises IT to "bone up on the underlying technologies in cloud and determine whether they could benefit from engaging with cloud service providers or SaaS vendors."

Larger-density, smaller-footprint systems represent another server-related trend, Haskvitz says, while King says numerous vendors are leveraging flash and SSDs to provide a substantial boost to overall system performance and advises that companies that consider high-end processing and performance important "should definitely take a look at it." P

Buyers' Checklist

- ✔ Match the application and workload the server will support to the CPU, memory, I/O, storage, and other components they'll require.
- ✔ Recognize that virtualization, consolidation, and cloud computing are trending areas where servers are concerned.
- ✔ Ensure the vendor satisfies all questions concerning support, compatibility, performance, and other issues.

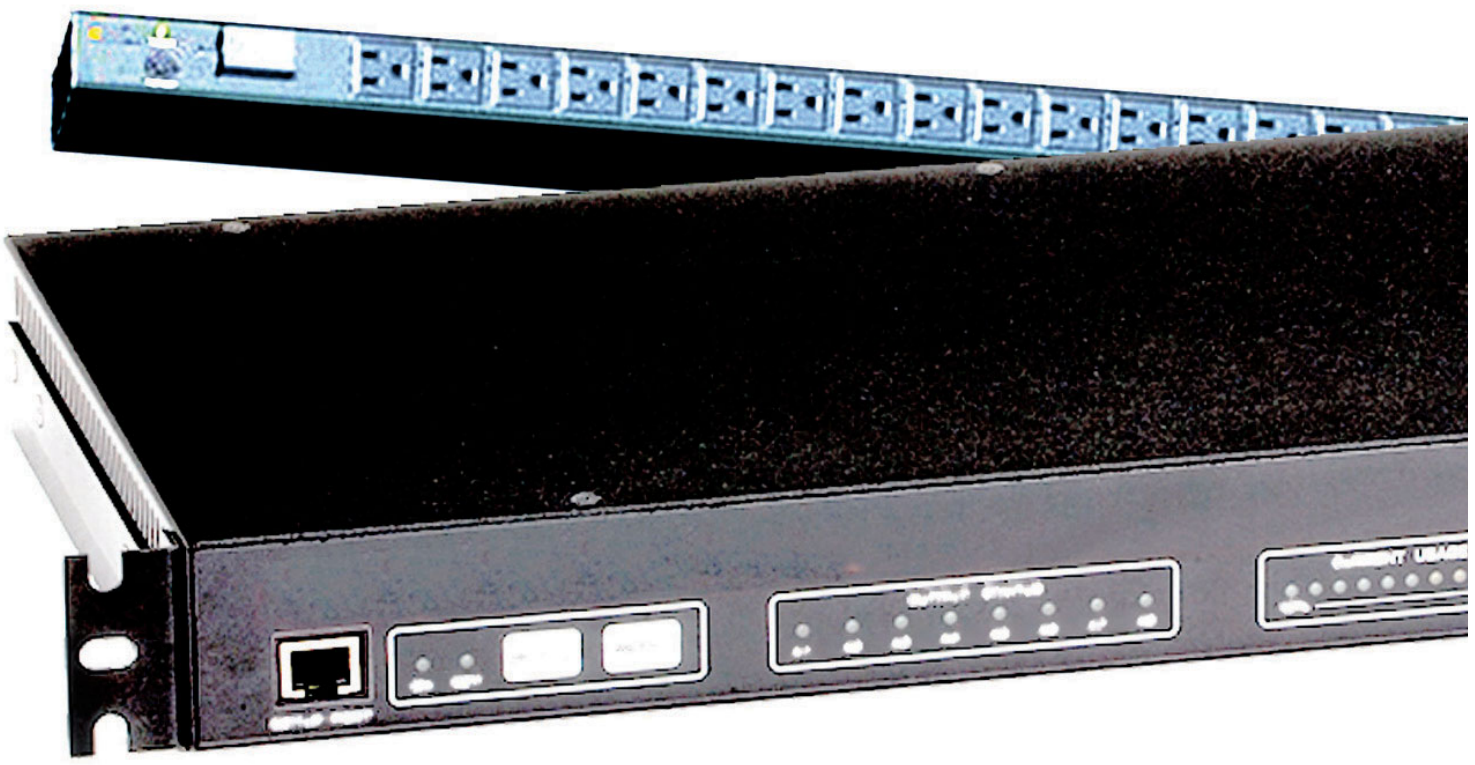
Key Terms

Configuration.
Refers to a server's makeup in terms of components (CPU, memory, storage, etc.), OS, and the like.

TCO.
Total cost of ownership includes the server's initial acquisition cost but also associated maintenance, facilities, cabling, and other expenses covering three to five years.

Buying Tips:

UPSes



The importance of UPSes can't be overstated. If power outages occur and the data center doesn't have UPSes in place that can meet necessary power requirements, the result will be potentially business-crippling downtime.

✔ Learn Your Total Load, Maximum Runtime & More

Narrowing down what you need in UPSes can be difficult, and the number of options available can complicate matters. "You have to start with some basics and be armed with some knowledge before making a selection," says Brett Femrite, director of business development at Rackmount Solutions (866/207-6631; www.rackmountsolutions.net).

Know the total load of all equipment you'll connect to the UPS, the minimum time UPS batteries must provide power, and the maximum runtime needed. "You'll also need to know the voltage of the electrical service that will power the UPS," he says.

✔ Check For Efficiency Ratings

Jim Hall, marketing manager at Staco Energy Products (866/261-1191; www.stacoenergy.com), advises obtaining UPSes that provide an overall efficiency rating of 95% or greater, input power factor greater than 99%, and input distortion factor of 3% or less. Also consider models with multiple operation modes that are generator-friendly and that support hot system expansion, which allows parallel UPS additions without going to maintenance bypass, resulting in continuous protection of the loads.

✔ Calculate TCO

Make low TCO a priority, Hall says. "This includes batteries and other auxiliary hardware. The considerations are initial cost to acquire, install, operate, and maintain the equipment." UPS maintenance (in-house or outsourced) is also a significant portion of TCO, he says. Backup batteries that need replacement form the main factor affecting a UPS TCO figure, he says. Pay attention to battery types, longevity, quantity, and automatic testing.

✔ Know The Features & Options

The UPS features your enterprise needs can depend greatly on the protection level required for given applications. Femrite says that although it's desirable to have a UPS with a high efficiency rating, external bypass switches that enable power to bypass the UPS for maintenance purposes, monitoring capabilities (local and remote), warranties (system, batteries, etc.) and high-performance filtering, "they may not all be needed or cost-effective."

Hall says three-phase online double conversion UPSes (convert AC to DC power and back to AC) offer the best overall value while providing conditioned power to IT loads. Such systems isolate the load from the primary AC line, preventing noise, sags, and swells from reaching the load. Also consider UPSes with high-performance filtering (protects upstream power sources from harmonics and reactive power), dual input for main and secondary emergency standby power (increases resilience of both single and parallel configurations), and IGBT (insulate-gate bipolar transistors) and DSP (digital signal processors) that provide for a true online double conversion UPS system, Hall says.

✔ Monitor Battery Power

Batteries, Halls says, are the leading cause of power interruptions, both as primary emergency power backup and as the source of crossover power for starting backup generators. Batteries degrade with age, he says, even when not experiencing lots of discharge cycles. If minimum runtime is critical, select a battery that provides a cushion so that after several years minimum, runtimes are still achievable, he says.

Also ensure the UPS is properly sized to handle transient loads that might occur when utility sources aren't available. "While a UPS can handle significant momentary overloads using the bypass, this capability is not available when running on battery power," Hall says. Enterprises often buy UPSes sized too close to the average load power and don't take transient loads into account, he says.

Also, Hall says, federal law requires that all used lead acid batteries be managed as universal waste. "For this reason alone, facilities with lead acid valve regulated or wet cell/flooded batteries should consider hiring approved firms to handle all battery installations, maintenance, and disposal," Hall says. P

Buyers' Checklist

- ✔ Determine your power and protection requirements
- ✔ Ensure the UPS can handle required loads
- ✔ Make certain the UPS provides sufficient runtime and capacity
- ✔ Consider outsourcing battery installation, maintenance, and disposal duties
- ✔ Determine warranty, insurance, and guarantee requirements

Key Terms

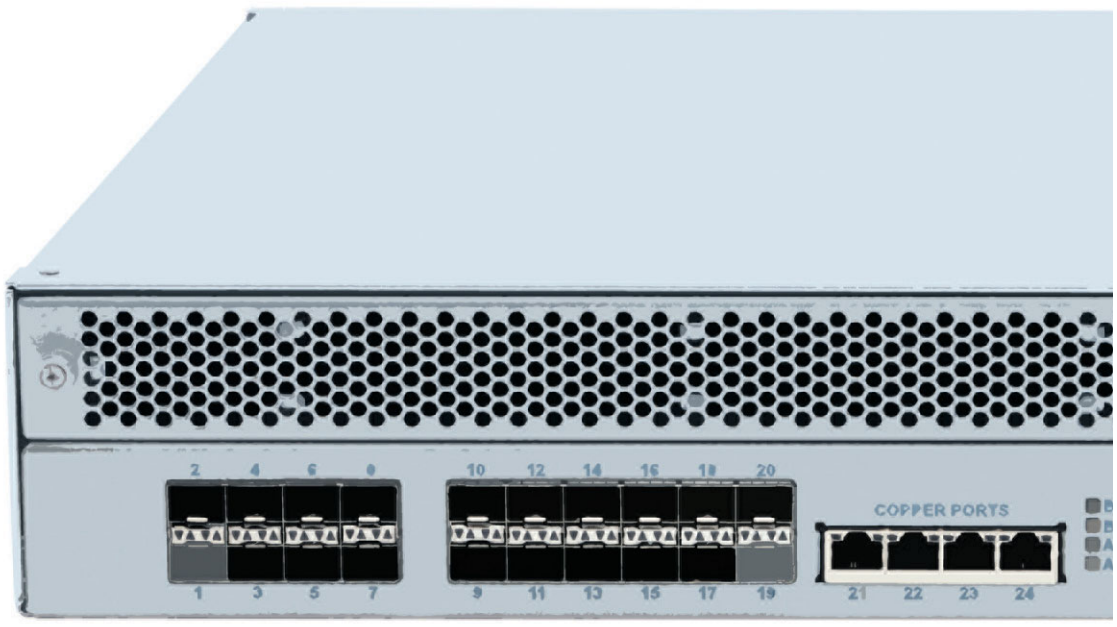
Line-interactive:
A UPS with built-in line-sensing abilities to regulate high- and low-voltage levels; an inverter activates when power loss occurs and the system switches to battery power.

Online:
A UPS type providing the highest protection level; the inverter is online and operates constantly to eliminate incoming surges and low and high voltage issues while delivering clean power.

Standby:
A UPS type that runs power through surge suppression to connected equipment; after a power outage, the UPS switches to battery backup power, reverting to AC power when power returns.

BUYING TIPS:

Networking



THE HEALTH of a company's network is crucial to its productivity. As such, choosing the right monitoring system increases the commercial worth of your business, says Steve Francis, founder and chief product officer for LogicMonitor (www.logicmonitor.com).

"Monitoring is needed to reduce outages and improve performance and availability," Francis says. "While it needs to be done effectively, the amount of time spent configuring and managing the monitoring will reduce the ROI of the [system], as it takes the IT staff away from adding more value to the enterprise."

As you evaluate how you're going to manage your unique network and improve metrics overall, take into account the following key items to consider in a networking or network monitoring solution.

✔ Weigh Support Options & Customer Testimonials

Because you're making a decision to partner with a service provider or roll out network monitoring software, you'll want to assess the quality of every potential vendor's ongoing support. Francis says that support can be a big differentiator, because there's always some level of learning. He recommends determining how available and engaged the support or on-boarding process is.

Customer recommendations and testimonials should ease the burden of this process. They allow you to look beyond what the vendor says about its products to see what customers and other end users are saying about the products.

✔ Look At Business Impact

Francis advises against comparing feature lists and instead recommends comparing the business impact of the monitoring systems you're researching. He explains that one system may have a bevy of features, but the way it is implemented means significant user time is required in order to utilize the system. "Another system may only implement 80% of the desired features, but the missing 20% may only rarely be used and have minimal business impact," Francis says. "Any system that allows the same IT staff to effectively monitor more systems is a better choice."

✔ Factor In Ease Of Use

Francis says a network monitoring solution that's not easy to use isn't much good. Because your business has its own specific needs, make sure the product you plan to buy is both customizable and flexible.

Francis highlights the importance of being able to easily tune and customize alerts and thresholds. For instance, he says, you may want different CPU levels to trigger alerts for the different classes of hosts, and you don't want to have to change thresholds on each device in monitoring. P

BUYERS' CHECKLIST

- ✔ Do you prefer a service provider or a SaaS-based monitoring system?
- ✔ Does the vendor offer a starter edition or a free trial service?
- ✔ Are you considering outsourced or in-house monitoring?
- ✔ Does the service include an all-in licensing model?
- ✔ Is the product designed for the needs of a small to medium-sized enterprise?
- ✔ What is the default depth of monitoring?
- ✔ Have you decided what changes you're willing to apply to your budget to cover the cost of new staffing and monitoring solutions?

KEY TERMS

Continuous monitoring.
An important feature of network monitoring that lets you quickly find problems and resolve them before they escalate.

Distributed monitoring.
A feature that allows monitoring solutions to be able to monitor multiple networks in different locations, such as subsidiaries (from headquarters), separated networks, and customer networks.

IPv6.
A new communications protocol designed to replace IPv4 and prevent the problem of running out of potential IP addresses. IPv6 uses 128-bit addressing, compared to IPv4, which uses 32-bit addressing.

Network usage.
A valuable benefit of network monitoring tools that will help you create individual usage reports based on user and time of day.

BUYING TIPS:

Used & Refurbished Equipment

✔ Know Who You're Dealing With

Before doing business with any seller for the first time, it's a good idea to do some research. "If it's a large purchase, you can check their affiliations [and] credit reports and ask if they have a list of clients that you may contact," says Morris Scott, president of DMD Systems Recovery (www.dmdsystems.com).

If you're interested in cultivating a long-term relationship with a reseller for future equipment purchases, Scott recommends starting with a few smaller purchases to gauge how well the company delivers on its promises. "Get warranties in writing," he adds. "Using signed purchase agreements for larger acquisitions is always helpful." It's also important to check a company's references and product knowledge.

✔ Know The Signs Of Possible Counterfeit Equipment

Hardware equipment is at risk for counterfeiting, especially equipment with recognizable, higher-margin brand names. Counterfeiters don't mind investing more money into making good fakes, and, unfortunately, it's not always easy to spot these fakes. If equipment is in its original packaging, pay to the quality. As always, know who you're dealing with and research the reputation of the company you're buying from, then be sure you know the recourses available should you discover something is counterfeit.

✔ Beware The "Too Good" Price

The old adage certainly applies to refurbished equipment prices: If it seems too good to be true, it probably is. If several vendors quote similar prices, but one vendor quotes a price that's significantly lower, put on your skeptical face and dig a little deeper.

✔ Understand The Testing Process

A visual inspection and diagnostics testing are usually the first steps in the testing process. Technicians ensure that components are complete, that they're operating at the original specifications, and that everything is current and in proper working order. But successfully getting through the diagnostics phase doesn't mean that a piece of equipment is home free. Other factors can still move items from the refurbish line to the recycle heap. Used and refurbished equipment dealers look for problems such as cosmetic repairs that require too much time to fix or signs of pending equipment failure or tampering.

"You can't just turn the equipment on and perform a 'green light' test," says Stephen Jaynes, COO at xByte Technologies (www.xbyte.com). "All equipment should be tested and updated using the diagnostic utilities from the manufacturer. They can be sharper in some of their predictive failures and enable refurbishers to update all BIOS and firmware levels to the most current state."

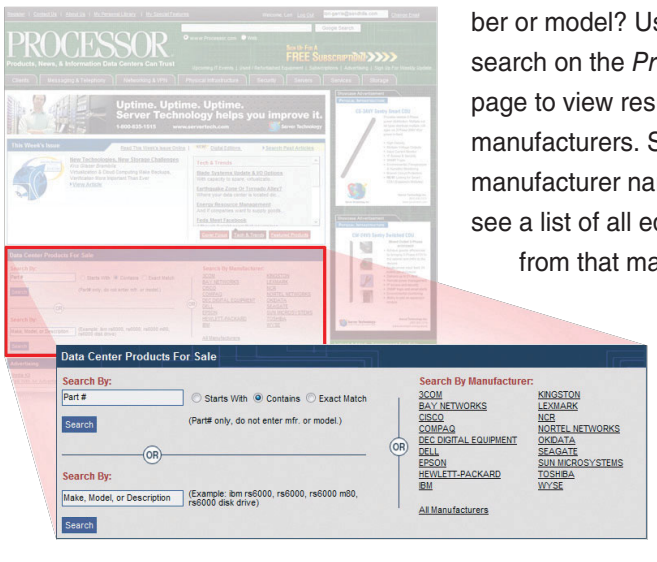
✔ Ensure Equipment Security By Starting With A Clean Slate

When it comes to used or refurbished equipment, whether you're buying it from someone else or selling your own, you must make sure that it has been wiped clean so as to avoid costly security breaches and data loss. "A lot of companies selling off their excess IT assets worry about the data that is left over on those systems. They are concerned with making sure that all of the proprietary information stored on those systems is wiped before they re-enter the market," says Benjamin Yampolsky, director of IT at Aventis (www.aventissystems.com). "However, the same companies show little concern when buying refurbished computers. It is important to make sure the secondhand equipment entering the enterprise has gone through the process of being wiped and reset to factory defaults so as not to leave access holes."

Use Processor.com To Find Used & Refurbished Equipment

Once you've made the decision to purchase used or refurbished equipment, finding the equipment you need is easy with *Processor*'s online Data Center Products For Sale Database.

From *Processor*'s home page (www.processor.com), you can search for a specific part number, make, model, or description. Enter the information in the appropriate box and click Search. You'll see a list of available equipment. If you don't see the particular piece you're looking for, scroll to the bottom of the search results page to conduct a more detailed search. There, you can search by part number, model, price, location, and more.



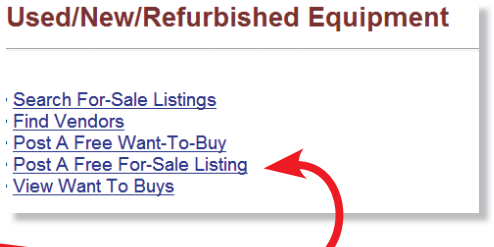
Don't know the specific part number or model? Use the drill-down search on the *Processor* home page to view results from specific manufacturers. Simply click the manufacturer name, and you'll see a list of all equipment listings from that manufacturer.

Do you have excess equipment?

Post it for sale on Processor.com!

On the Processor.com home page, click Used/Refurbished Equipment.

Choose Post A Free For-Sale Listing.



Follow the on-screen directions from there!

PROCESSOR

Upcoming **IT** Events

Network With Your Peers At These IT Training & Association Meetings Across The United States

AUGUST

AITP Washington, D.C.
Aug. 9
Alfio's La Trattorio Restaurant
4515 Willard Ave.
Chevy Chase, Md.
www.aitpdc.org

SpecTECHular 2012
Aug. 9
New Horizons Kansas City
9611 E. Metcalf Ave.
Overland Park, Kansas
register.nhcomputerlearning.com/Events/

AITP Akron-Region 18 IT CON
Aug. 11, 8 a.m. to 5 p.m.
Holiday Inn-Cleveland South
6001 Rockside Road
Independence, Ohio
www.aitp-region18.org

AITP Pittsburgh
Aug. 13, 5 to 8 p.m.
Silvioni's Restaurant
2125 Babcock Blvd.
Pittsburgh, Pa.
www.aitp-pgh.org

SpecTECHular 2012
Aug. 21
New Horizons Oklahoma City
3010 NW 149th St.
Oklahoma City, Okla.
register.nhcomputerlearning.com/Events/

ISSA Baltimore
Aug. 22
Concurrent Technologies Corp.
8530 Corridor Road
Savage, Md.
www.issa-balt.org

SpecTECHular 2012
Aug. 28
New Horizons South Dakota
4610 Technopolis Drive, Suite 100
Sioux Falls, S.D.
register.nhcomputerlearning.com/Events/

SEPTEMBER

AITP Pittsburgh
Sept. 10, 5 to 8 p.m.
Silvioni's Restaurant
2125 Babcock Blvd.
Pittsburgh, Pa.
www.aitp-pgh.org

AITP Washington, D.C.
Sept. 13
Alfio's La Trattorio Restaurant
4515 Willard Ave., Chevy Chase, Md.
www.aitpdc.org

ISSA Baltimore Information Security Summit
Sept. 13, 7:30 a.m. to 4:30 p.m.
NIST
100 Bureau Drive
Gaithersburg, Md.
infosec-summit.issa-balt.org/index.html

AITP Northeastern Wisconsin
Sept. 19
Holiday Inn-Appleton
150 S. Nicolet Road
Appleton, Wis.
new.aitp.org

ISSA Baltimore
Sept. 19
Concurrent Technologies Corp.
8530 Corridor Road, Savage, Md.
www.issa-balt.org

AITP Cornhusker
Sept. 20, 5:30 p.m.
Lincoln, Neb.
www.aitp.org/members/group.asp?id=75767

AITP Akron
Sept. 25
Akron, Ohio
www.akron-aitp.org

Data Center World
Sept. 30-Oct. 3
Gaylord Opryland, Nashville, Tenn.
www.afcom.com

OCTOBER

Interop New York
Oct. 1-5
Javits Convention Center
New York, N.Y.
www.interop.com

AITP Pittsburgh
Oct. 8, 5 to 8 p.m.
Silvioni's Restaurant
2125 Babcock Blvd.
Pittsburgh, Pa.
www.aitp-pgh.org

AITP Northeastern Wisconsin
Oct. 10
Radisson Hotel and Convention Center
2040 Airport Drive
Green Bay, Wis.
new.aitp.org

AITP National Annual Meeting of the Members and Region 5 Fall Technology Conference
Oct. 11
Radisson Hotel and Convention Center
2040 Airport Drive, Green Bay, Wis.
www.aitp.org/region5

AITP Washington, D.C.
Oct. 11
Alfio's La Trattorio Restaurant
4515 Willard Ave.
Chevy Chase, Md.
www.aitpdc.org

AITP Cornhusker
Oct. 18, 5:30 p.m.
Lincoln, Neb.
www.aitp.org/members/group.asp?id=75767

ISSA Baltimore
Oct. 24
Concurrent Technologies Corp.
8530 Corridor Road, Savage, Md.
www.issa-balt.org

WPDevCon
Oct. 24
San Francisco, Calif.
www.wpdevcon.net

AITP Akron
Oct. 30
Akron, Ohio
www.akron-aitp.org

NOVEMBER

AITP Washington, D.C.
Nov. 8
Alfio's La Trattorio Restaurant
4515 Willard Ave.
Chevy Chase, Md.
www.aitpdc.org

AITP Pittsburgh
Nov. 12, 5 to 8 p.m.
Silvioni's Restaurant
2125 Babcock Blvd.
Pittsburgh, Pa.
www.aitp-pgh.org

AITP Northeastern Wisconsin
Nov. 14
Holiday Inn-Appleton
150 S. Nicolet Road
Appleton, Wis.
new.aitp.org

AITP Cornhusker
Nov. 15, 5:30 p.m.
Lincoln, Neb.
www.aitp.org/members/group.asp?id=75767

ISSA Baltimore
Nov. 28
Concurrent Technologies Corp.
8530 Corridor Road
Savage, Md.
www.issa-balt.org

DECEMBER

Android DevCon IV
Dec. 7
San Francisco, Calif.
www.andevcon.com

AITP Pittsburgh
Dec. 10, 5 to 8 p.m.
Silvioni's Restaurant
2125 Babcock Blvd., Pittsburgh, Pa.
www.aitp-pgh.org

AITP Washington, D.C.
Dec. 13
Alfio's La Trattorio Restaurant
4515 Willard Ave.
Chevy Chase, Md.
www.aitpdc.org

ISSA Baltimore
Dec. 19
Concurrent Technologies Corp.
8530 Corridor Road
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AITP Cornhusker
Dec. 20, 5:30 p.m.
Lincoln, Neb.
www.aitp.org/members/group.asp?id=75767

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How Wireless Carriers & Companies Are Addressing The Data Deluge
Key Points

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Processor Solutions Directory

Here are brief snapshots of several companies offering products designed for the data center and IT industry.

Listings are sorted by category, making it easy for you to find and compare companies offering the products and services you need.

You can find more detailed information on these companies and the products they offer inside this issue.

To list your company and products, call (800) 247-4880.

Physical Infrastructure

PDU Cables™
Innovator in data center efficiency

PDU Cables is the leading supplier of power distribution cables assemblies to data centers in North America. PDU Cables has been serving this industry since 1981 and is the first independent cable assembly company to introduce colored conduit into the power distribution cable market, the first to get UL 478 listing, and the first to introduce the Power Cable and Equipment Configurator software tool. The company is centrally located in Minneapolis, Minn., allowing it to offer 24-hour turnaround and shipping time of just one or two days to almost any United States destination.

Products Sold:

A range of power cables, cable seals, and power cord assemblies.

(866) 631-4238 I www.pducables.com

Physical Infrastructure

Total Cable Solutions

Total Cable Solutions (TCS) provides a wide range of products from copper keystone jacks to custom bundled fiber cables. All products are manufactured with TCS's highest quality, in factories that are ISO-9001 and TUV Certified. All of our cable lines meet or exceed EIA/TIA RoHs standards.

Products Sold:

- Fiber patch cords
- Pre-terminated multi-fiber trunk cables
- CAT5e and CAT6 patch cables
- Fiber and copper patch panels
- Keystone jacks, and other accessories

(888) 235-2097 I www.TotalCableSolutions.com

Physical Infrastructure

SENSAPHONE®
REMOTE MONITORING SOLUTIONS

Sensaphone has been designing and manufacturing remote monitoring systems for more than 25 years and has more than 300,000 of its products in use. Sensaphone's product lineup offers a full range of devices with a broad number of features and applications designed to monitor your entire infrastructure and alert you to changes. All product engineering functions, including hardware and software design and circuit board layout and assembly, are performed at the Sensaphone facility in Aston, Penn.

Products Sold:

Remote monitoring solutions that provide email and voice alarm notification for problems related to temperature, humidity, water detection, power failure, and more.

(877) 373-2700 I www.sensaphone.com

Physical Infrastructure

Staco Energy was founded in 1937 and is one of the longest-lasting innovators of power products and services in the world. Our recent innovations have created the foundation for entry into the SMB data center marketplace through pioneered design and expertise. We are committed to providing you with the best tailored power solutions for your needs.

Products Sold:

A full line of UPS products, including our new FirstLine P 65 – 250kVA UPS, FirstLine PL 10 – 100kVA UPS, FirstLine BMS, and related accessories and services.

(866) 261-1191 I www.stacoenergy.com

Physical Infrastructure

RackSolutions has been serving the data center market for more than 10 years. All of our products are designed, engineered, built, and shipped under our own roof. We have product solutions available for every major OEM, but if one of our existing products doesn't fit your needs, our top-notch mechanical and electrical engineers can create the item you need from scratch, solving even the toughest installation design challenges. Best of all, we typically don't charge up-front fees for design services.

Products Sold:

Computer server racks, cabinets, shelves, and mounting products.

(888) 903-7225 I www.racksolutions.com

Physical Infrastructure

LINDY USA specializes in cables, adapters, electronics and accessories for computer, networking and audio video applications. Since 1932 Lindy has supplied high quality interconnects to customers in commercial, telecom and residential markets. What sets us apart is our complete dedication to innovation, performance and reliability. Our cabling products are truly outstanding.

Products Sold:

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Physical Infrastructure

BayTech was founded in 1976 and, since the 1990s, has developed unique products for remote power management. The company uses printed circuit board instead of wires for a better, more resilient connection between the data center equipment and the receptacle. BayTech provides an extensive Web site with brochure downloads, warranty information, and reseller support and also offers evaluation units for data centers.

Products Sold:

- Power control, distribution, management, and metering
- Power transfer switches
- Console management and remote site management

(800) 523-2702 I www.baytech.net

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Mainline Computer Products has been in business since 1986 and has one of the nation's largest selections of LAN furniture, command centers, and server cabinets. We can serve companies of all sizes, including educational institutions and city, state, and federal government agencies. In addition to offering data center equipment, we can assist in the planning, design, construction, and design/build process.

Products Sold:

- Command consoles
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- Computer room equipment
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Physical Infrastructure

PDUsDirect.com is a Master Distributor of select Server Technology PDUs for server and networked environments. PDUs Direct's basic, metered, and switched Rack PDUs provide local and remote power management, power monitoring, and environmental monitoring. We pride ourselves in offering industrial-grade quality products at the lowest prices, with the fastest shipping (most orders shipped within 24 hours) and simplest purchase process. We are the Power Behind the Business.

Products Sold:

A complete line of metered and basic PDUs, and 20A switched PDUs.

(888) 751-7387 I pdusdirect.com

Physical Infrastructure

AVTECH Software, founded in 1988, is focused on making the monitoring and management of systems, servers, networks, and data center environments easier. AVTECH provides powerful, easy-to-use software and hardware that saves organizations time and money while improving operational efficiency and preparedness. AVTECH products use advanced alerting technologies to communicate critical status information and can perform automatic corrective actions.

Products Sold:

A full range of products that monitor the IT and facilities environment, including temperature, humidity, power, flood, room entry, and UPS

(888) 220-6700 I www.AVTECH.com

Physical Infrastructure

As an integrator and master distributor providing quality power solutions, HM Cragg has built a reputation as the company that delivers innovation to aid and satisfy its customers. HM Cragg was founded in 1968 and is 100% employee-owned, focusing on quality people and exceptional products.

Products Sold:

- AC and DC power solutions (UPSes, power distribution)
- Control and monitoring (environmental and power)
- Connectors and cables (cord sets, ePDU cables)
- Cooling (air flow management, portable cooling)
- Racks and enclosures (standard racks, battery racks)
- Safety equipment (spill containment, safety signs)

(800) 672-7244 I www.hmcragg.com

Physical Infrastructure

CTI was founded by Methode Electronics in 1997 and during the past 13 years has provided data centers with innovative solutions. CTI has recently become the cornerstone of Methode's Data Solutions Group, joining forces with the Methode dataMate and OPTOKON divisions in supporting the data center and communication industries. In addition, our highly qualified professional services team can engineer and install the best solution to fit your needs.

Products Sold:

Fiber and copper cabling solutions; Smart DACs; cabinets, patch panels; asset tracking; biometric access control; optical test equipment; harsh environment network equipment

(888) 446-9175 I www.methode.com/data

Physical Infrastructure

The MovinCool division of DENSO Sales California has pioneered the use of portable air conditioning solutions for a variety of North and South American markets since 1982. MovinCool works with a national network of distributors and suppliers to provide product sales, installation, and rental.

Products Sold:

- Office Pro Portable Air Conditioner Series for indoor environments such as server and telecom rooms
- Classic & Classic Plus Portable Air Conditioner Series for moisture removal, outdoor and industrial spot-cooling
- CM Series ceiling-mounted A/C for cooling server rooms, telecom closets, or anywhere space is limited

(800) 264-9573 I www.movincool.com

Physical Infrastructure

Based in New York City, Hergo Ergonomic Support Systems is an independent designer and manufacturer of enclosure cabinet solutions, technical computer furniture, and modular racking systems. The company's products are designed to promote organization in the workspace and to increase the productivity of computers, peripherals, and communications equipment. Hergo is known for its high-quality products and superior customer service.

Products Sold:

- Racks
- Enclosures/cabinets
- Motorized workstations
- Flat-panel arms
- Computer desks
- Cable management
- Power management

(888) 222-7270 | www.hergo.com

Physical Infrastructure

Upsite, the "Pioneering Company in Airflow Management Solutions" was founded by Ken Brill, who established the Uptime Institute, a think tank dedicated to identifying efficiencies within data centers. Upsite's LOK Family of energy-efficient solutions are engineered to optimize the data center. This sets Upsite apart. Upsite solutions empower data center managers to leverage cost savings for data center optimization (i.e. releasing stranded capacity, increasing server density, improving system reliability & reducing energy consumption).

Products Sold:

- KoldLok
- HotLok
- AisleLok
- EnergyLok

(505) 798-0200 or (888) 982-7800 I www.upsite.com

Physical Infrastructure

RACKMOUNT SOLUTIONS

Rackmount Solutions' mission is to listen to the IT engineer's specific needs and deliver superb-quality, high-performance products through continuous product innovation and operational excellence. We pride ourselves in providing quality customer service, products that fit your IT requirements, and solid value for your money.

Products Sold:

- Wallmount and server racks and cabinets, including sound proof, air conditioned, and large cable bundle
- Desktop/tabletop portable racks
- Shockmount shipping cases
- Bulk cable

(866) 207-6631 I www.rackmountsolutions.net

Networking & VPN

METRIC SYSTEMS CORPORATION

Metric Systems Corporation® designs and manufactures broadband wireless networking equipment, and end-to-end solutions for government and industry. We've been in the business of manufacturing and integrating reliable industrial-grade wireless networking systems for over 25 years. Our networks are deployed around the world protecting and supporting people and machines. Our specialty is working with your unique requirements and existing infrastructure to provide a networking solution that fits your requirements, schedule, and budget.

Products Sold:

Rhino Box® Environmentally Controlled Equipment Shelters and SAFARI™ Wireless Controllers and Radio Systems.

(800) 549-7421 I www.metricsystems.com

Storage

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(800) 821-1782 I www.WeBuyUsedTape.net

Storage

ABERDEEN SERVERS AND STORAGE

Founded in 1991, Aberdeen is a leading manufacturer of servers and storage options for IT departments. Aberdeen products can be found in many of today's high-tech corporations, as well as government agencies, hospitals, and universities. Aberdeen prides itself on unmatched customer service, open and honest communications, long-term commitments to working relationships, and personal and professional integrity.

Products Sold:

- Components/parts
- Servers (barebones, custom, rackmount, and storage)
- Software
- Storage (DAS, iSCSI SAN, JBOD, NAS, SAN)

(800) 500-9526 I www.aberdeeninc.com

Storage

OCZ Technology

The OCZ Technology Group has been offering enterprise class solutions for many years and OCZe (OCZ enterprise) represents the company's offerings that cater specifically to the unique needs of both Enterprise and OEM clients. These innovative products are designed and manufactured to solve problems and deliver improved total cost of ownership (TCO) to clients requiring enterprise class solutions.

Products Sold:

- Solid State Drives
- Power Management

(408) 733-8400 I oemsales@oczenterprise.com

Security

FLOWTRAQ

ProQSys, of Lebanon, N.H., is a privately owned developer of flow analysis software for network security, monitoring, and forensics. Named for the Process Query System correlation technology at the heart of its products, ProQSys' goal is to make networks more understandable and transparent to the personnel tasked with running them. Its customer base includes government, industry, military, education, and business entities, including MSPs and ISPs.

Products Sold:

FlowTraq software, which helps you get a better understanding of your network's structure and traffic, providing vital information when something goes wrong.

(603) 727-4477 I www.proqsys.com

Servers

CHENBRO

Chenbro is a leader in enclosure solutions, selling its products primarily to system integrators and OEM and channel partners. The company's extensive research and development efforts help it to keep its competitive edge and maintain market leadership, with special focus on thermal, EMI, and acoustic solutions. Taiwan-based Chenbro has offices in the United States, UK, The Netherlands, and China.

Products Sold:

- A comprehensive line of PC chassis, server/workstation chassis, rackmount chassis, and HDD enclosures.

(909) 947-3200 I www.chenbro.com

Servers

SUPERMICRO®

Supermicro® (NASDAQ: SMCI), the leading innovator in high-performance, high-efficiency server technology ,is a premier provider of advanced server Building Block Solutions® for enterprise IT, data center, cloud computing, HPC, and embedded systems worldwide. Supermicro is committed to protecting the environment through its "We Keep IT Green®" initiative by providing customers with the most energy-efficient, environmentally-friendly solutions available on the market.

Products Sold:

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- Chassis
- Network switches
- Storage solutions
- Blade servers
- GPU servers
- Embedded

(408) 503-8000 I www.supermicro.com

Clients

dtSearch® www.dtsearch.com

Maryland-based dtSearch started research and development in text retrieval in 1988. The company is known for speedy adoption of new programming standards, OSes, and file types. Plus, it has a flexible licensing model. Typical corporate use of dtSearch includes general information retrieval, Internet and intranet site searching, and email archiving and email filtering.

Products Sold:

Text retrieval products, including:

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- Network With Spider
- Publish For CD/DVDs
- Web With Spider
- Engine For Win & .NET
- Engine For Linux

(800) 483-4637 I www.dtsearch.com

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